



Operator Manual

For the Hiab Moffett
Truck-Mounted Forklift
Equipped with Reach Mast



Delivering **Confidence**

Original Instructions

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DISCLAIMER NOTICE

Cargotec is pleased to provide you with this moving mast Operator Manual. You should find in this Manual all of the basic information needed to operate your new Hiab Moffett Truck-Mounted unit safely and efficiently. Cargotec also wants to advise you of the following:

1. Cargotec warrants that the information contained in this Manual is accurate as of the date it was sent to you. We reserve the right to modify the equipment, the Manual, or both, without notice. The information and recommendations contained in this publication have been compiled from sources believed to be reliable. To the extent that matters discussed herein state opinions, they represent the best current opinion on the subject available to Cargotec. No warranty, guarantee, or representation is made by Cargotec as to the correctness or sufficiency of any opinion contained in this publication, and we cannot assume responsibility in connection herewith. You should not assume that all acceptable safety measures are contained in this publication, or that other or additional measures may not be required under particular or exceptional conditions or circumstances.
2. Cargotec does not warrant, and specifically disclaims, that following the recommendations contained in the Manual will necessarily prevent accidents or injuries. It has been our experience that adequate operator training, in addition to complete familiarity with the Manual, is essential to the safe and efficient operation of the Hiab Moffett Truck-Mounted Forklift equipment. Under applicable OSHA regulations, the employer is responsible for training all operators of powered industrial equipment such as the Hiab Moffett Truck-Mounted Forklift.
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1. SAFETY CHECKLIST

Safety Notices

In this operator manual and on the machine there are safety notices and decals. Each of these has a signal word that indicates the outcome of the hazardous situation if the safety instructions are not followed. The decals on the machine also have a specific color to help identify the hazard level. The signal words and colors along with the outcome of the hazardous situation can be seen below:



(DANGER - RED) INDICATES AN IMMEDIATE HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, **WILL** RESULT IN DEATH OR SERIOUS INJURY.



(WARNING - ORANGE) INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH IF NOT AVOIDED, **COULD** RESULT IN DEATH OR SERIOUS INJURY.



(CAUTION - YELLOW) INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, **MAY** RESULT IN MINOR OR MODERATE INJURY.



(INSTRUCTIONS - GREEN) INDICATES THE INFORMATION IS FOR INSTRUCTION ONLY.

Study this operator manual before starting the machine. You must understand and follow the instructions in this operator manual. You must observe all relevant laws and regulations. If you are unsure about anything, ask your Hiab Moffett Truck-Mounted Forklift Distributor or supervisor. **Do not guess** because if you are incorrect you or others could be killed or seriously injured.

Note: You must be a trained Hiab Moffett Truck-Mounted Forklift operator to use this machine. The Moffett Operator Safety Training (MOST) Program has been developed to assist employers with this training.
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1. SAFETY CHECKLIST

Introduction to General Safety

This section of the operator manual is intended to REMIND the operator of basic safety requirements when operating industrial machinery. It is not a complete list of hazards that may exist when operating or maintaining the Hiab Moffett Truck-Mounted Forklift. It is also not intended to be used for training purposes.

Forklift training requirements are mandated by OSHA – the Occupational Safety and Health Administration which is the government organization responsible for safe employee working conditions. OSHA sets out rules for forklift operator training identified as 29 CFR 1910.178 Powered Industrial Trucks. This reference can be found in the Code of Federal Register (CFR) under the General Industry requirements (Part 1910) in section 178. The 29 refers to the Department of Labor classification (OSHA is part of the Department of Labor) which outlines the training requirements for forklift operators. OSHA has mandated that employers MUST certify that each forklift operator has been trained.

Cargotec can provide employers with materials to assist them in partially meeting the requirements of 29CFR 1910.178(I) OSHA's Powered Industrial Truck Operator Training. The Moffett Operator Safety Training Program "MOST" Program training material has been developed to train operators on the operation of the Hiab Moffett Truck-Mounted Forklift.

Specific hazards relating to maintenance instructions and operating procedures are detailed in the relevant sections of this operator manual.

Remember Safety First – Yours and Other Peoples

All industrial equipment can be hazardous. When a machine is properly operated and maintained, it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and to others.

In this operator manual and on the machine you will find warning messages. Read and understand them. They tell you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your supervisor or Hiab Moffett Truck-Mounted Forklift Distributor to explain them.

Safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking what hazards there might be and how to avoid them.

Do not work with the machine until you are sure you can control it. Do not start any job until you are sure that you and those around you will be safe. If you are unsure of anything, about the machine or the job, ask someone who knows. Do not assume anything.

1. SAFETY CHECKLIST

Operational Safety



DANGER:

Operator Manual. To use the Hiab Moffett Truck-Mounted Forklift efficiently and safely you must have read and understand the operator manual, be familiar with the machine and be trained and authorized to use it.



DANGER:

Forks. Do not permit personnel to stand on or ride on the forks.



DANGER:

Capacity. Never exceed the forklift's rated capacity or the machine may become unstable.



DANGER:

Power Lines. Never approach power lines with any part of the forklift as electrocution will result.



DANGER:

Rollover. Any machine that is used to lift and move loads may tip over if not operated correctly. No matter how experienced the operator is, accidents can still happen if the operator does not remain vigilant. Always be aware of the potential danger involved when using the Hiab Moffett Truck-Mounted Forklift. Be aware of what action you **MUST** take if the machine starts to tip or roll over.



DANGER:

Inclines. Never travel across inclines. Traveling across an incline with or without a load greatly increases the possibility of a tip over.



DANGER:

Stabilizers. Never raise the stabilizers when the mast carriage is extended with a load on.

1. SAFETY CHECKLIST

Operational Safety (continued)



WARNING:

Decals. If you need eye-glasses for reading, make sure you wear them when reading the safety decals. Decals are strategically placed around the machine to remind you of possible hazards. Do not over-stretch or place yourself in dangerous positions to read the decals. If any decals get damaged or removed, contact your supervisor and have them replaced.



WARNING:

Decals. Decals on the machine warn you of particular hazards. Each decal is attached close to a part of the machine where there is a possible hazard. Read and make sure you understand the safety messages before you work with or around any part of the machine. Keep all decals clean and readable. Replace lost or damaged decals. The decals and their attachment points are shown in this manual. Each decal has a part number printed beside it. Use this number to order a new decal from your Hiab Moffett Truck-Mounted Forklift Distributor.



WARNING:

Hydraulic Pressure. The hydraulic tank is pressurized and hydraulic oil may be hot. To avoid injury and spillage when removing the cap, stop the engine and remove the cap very slowly.



WARNING:

Vapors. Hot coolant, steam and vapors can severely burn. Stop the engine and allow it to cool before removing the radiator cap. When removing the radiator cap, turn it very slowly to allow the pressure to release.



WARNING:

Controls. If the forward/reverse pedal does not return to the neutral position, do NOT use the machine and contact your supervisor.



WARNING:

Engine. Never climb aboard or dismount from the machine with the engine running.

1. SAFETY CHECKLIST

Operational Safety (continued)



WARNING:

Operator Manual. Operating or maintaining the machine without studying this operator manual can cause accidents. Read the safety instructions before operating this machine. If you do not understand anything, ask your Hiab Moffett Truck-Mounted Forklift Distributor or supervisor to explain it. Keep this operator manual clean and in good condition. Do not operate the machine without an operator manual in the operator's compartment, or if there is anything on the machine you do not understand.



WARNING:

Care and Alertness. All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be aware of potential hazards.



WARNING:

Alcohol and Drugs. It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.



WARNING:

Working Environment. Remember that rain, snow, ice, mud, loose gravel and uneven or soft ground could change the operating capabilities and could cause you to lose control or cause the forklift to tip over.



WARNING:

Seatbelt. The operator's compartment is designed to give you protection in an accident. If you do not wear your seatbelt you could be thrown out of the machine. You must wear a seatbelt when using the machine. Fasten the seatbelt before starting the machine.



WARNING:

Machine Condition. A defective machine can cause accidents. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this operator manual are completed before using the machine.



WARNING:

Visibility. Accidents can be caused by working in poor visibility. Use the work lights on the machine to improve visibility. Do not operate the machine if you cannot see properly.

1. SAFETY CHECKLIST

Operational Safety (continued)



WARNING:

Practice. Do not perform unfamiliar operations without first practicing them. Practice away from the work site on a clear area. Keep other people away. Do not perform new operations until you can do them safely.



WARNING:

Controls. Do not control the machine from outside the operator's compartment. Operate the control levers only when you are correctly seated inside the operator's compartment with the seatbelt fastened.



WARNING:

Passengers. Passengers in or on the machine can cause accidents. The Hiab Moffett Truck-Mounted Forklift is a one person machine. Do not carry passengers.



WARNING:

Clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are; a hard hat, safety shoes, safety glasses, a well fitting overall, ear protectors and industrial gloves. Keep cuffs fastened. Do not wear a neck tie or scarf. Keep long hair restrained.



WARNING:

Safety. Always wear your seatbelt when driving the Hiab Moffett Truck-Mounted Forklift. The forklift may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat. The seat and seatbelt will help to keep you safely within the operator's compartment. In the event of a tip over, DO NOT JUMP, grip the steering wheel, brace your feet, lean away from the direction of tip-over and stay within the operator's compartment.



WARNING:

Seatbelt. If the seatbelt does not 'lock' when fastened do not drive the machine. The seatbelt assembly must be replaced immediately.

1. SAFETY CHECKLIST

Operational Safety (continued)



WARNING:

Engine Damage. Do not use starting fluid or spray as these are highly flammable, corrosive and cause engine damage.



WARNING:

Battery Isolator Switch. Do not activate the battery isolator switch when the engine is running as this could damage your engine.



WARNING:

Procedure. Never leave the operator's seat without first:

- Facing the machine uphill and turning the rear wheel sideways if stopped on an incline.
- Engaging the park brake.
- Lowering the forks to the ground.
- Placing all controls in the neutral position.
- Stopping the engine.
- Removing the key.



WARNING:

Loose Articles. Do not leave loose articles in the operator's compartment. Loose articles can fall and strike you, or roll on the floor. You could be knocked unconscious, or the controls could get jammed. If that happens you could lose control of the machine.



WARNING:

No Load. When traveling without a load the mast **MUST** always be fully extended.



WARNING:

Stabilizers. When placing a load, always place the load on a firm and level surface. The stabilizers must always be fully lowered before attempting to extend the mast. When lifting a load, the stabilizers must be fully lowered and raised only when the mast is fully retracted. When traveling without a load, the mast should be extended fully.



WARNING:

Loading. Before attempting to load a truck or trailer, chock the wheels of the truck/trailer to prevent it moving. Always lower the stabilizers fully before attempting to pick-up a load from a truck or trailer.

1. SAFETY CHECKLIST

Operational Safety (continued)



WARNING:

Stabilizers. When lowering the stabilizers, make certain the ground is sufficiently firm to support the stabilizers. On loose or uneven soil, it may be necessary to place flat wooden or metal supports beneath the stabilizers.



CAUTION:

Warning Lights. If at any point during the operation of the Hiab Moffett Truck-Mounted Forklift one or more of the dash panel warning lights are lit, the forklift must be stopped immediately and the engine shut off. Serious engine damage could occur if the forklift is operated with any of the warning lights on.



CAUTION:

Regulations. Obey all laws, work site and local regulations which affect you and your machine.



CAUTION:

Hydraulic Function. Never continue to operate a hydraulic function lever after the function has reached the end of its travel.



CAUTION:

Diff-Lock. Use the diff-lock only while traveling in a straight line.



CAUTION:

Safe Operation. If something comes loose, breaks or fails to operate:

- Stop.
- Apply the park brake.
- Shut down the engine.
- Get it repaired.



CAUTION:

Wide Loads. When carrying wide or tall loads your visibility may be blocked by the load. It may be safer to travel in reverse when moving with such loads. You may require a signal person or “spotter” to guide you. If the road lights are blocked by the load, the work lights must be used to improve visibility and ensure you are seen by other road users.

1. SAFETY CHECKLIST

Transport Safety



DANGER:

Transport. A Cargotec approved mounting kit must be fitted to your vehicle for transporting the Hiab Moffett Truck-Mounted Forklift. Contact your Hiab Moffett Truck-Mounted Forklift distributor for further details of approved mounting kits.



DANGER:

Transport. Do not attempt to transport the Hiab Moffett Truck-Mounted Forklift on a truck or trailer that is not equipped with a mounting kit designed and installed to Hiab Moffett Truck-Mounted Forklift specifications.

When carrying a Hiab Moffett Truck-Mounted Forklift, make certain that your vehicle complies with the relevant national and local laws and regulations regarding maximum vehicle weight, axle loading, overall vehicle length and overhang.



WARNING:

Transport. Do not attempt to transport the Hiab Moffett Truck-Mounted Forklift unless you have read the mounting section of the manual very carefully!



CAUTION:

Electrical Connector. It is important to ensure the electrical (suzie socket) connector is fitted correctly and that the lights on the rear of the Hiab Moffett Truck-Mounted Forklift are functioning properly.



CAUTION:

Hydraulic Pressure. It is important to release the hydraulic pressure so that the weight of the Hiab Moffett Truck-Mounted Forklift is carried by the mounting kit and transport chains and NOT by the mast. Otherwise damage will result from the forklift's weight resting on the mast.



CAUTION:

Rear Bumper. The rear bumper must be folded back out to full length and the locking pin and lynch pin fitted when the forklift is not being transported or removed for the purposes of loading or unloading.

1. SAFETY CHECKLIST

Maintenance Safety



WARNING:

Seatbelt. Failure to properly inspect and maintain the seatbelt can lead to a seatbelt failure in the event of an accident.

Any time the Hiab Moffett Truck-Mounted Forklift is being operated and is involved in an accident, the whole seatbelt assembly must be replaced. This is to ensure that if any unseen damage has occurred it is replaced.

If the seatbelt is worn or damaged it must be replaced.

The seatbelt must be inspected in detail at least once a year and more often if exposed to harsh conditions.

If replacement of any part of the seatbelt is required then the entire assembly must be replaced (retractor and buckle) with Cargotec recommended items from a service provider.



WARNING:

Compressed Air. When using compressed air ensure that relevant personal protection equipment/safety equipment is used at all times. Adhere to all company/manufacture safety information and guidelines.



WARNING:

Compressed Air. Using compressed air can be dangerous. Obey all statutory notices and apply all relevant health and safety regulations.



WARNING:

Procedure. If you are unsure how to follow any procedure in this manual, we strongly recommend that you seek the help of a competent mechanic.



WARNING:

Electric Shock. Keep all metal straps and fasteners from clothes or jewelry clear of the positive (+) battery terminal. Such items can cause a short between the battery terminal and nearby metal framework. If this happens you could get burned.



WARNING:

Raised Attachments. Raised attachments can fall and injure you. Do not walk or work under raised attachments unless they are safely blocked.

1. SAFETY CHECKLIST

Maintenance Safety (continued)



WARNING:

Raised Machine. NEVER position yourself or any part of your body under a raised machine which is not properly supported. If the machine moves unexpectedly you could become trapped.



WARNING:

Soft Ground. A machine can sink into soft ground. Never work under a machine on soft ground.



WARNING:

Lifting Equipment. If you are using lifting equipment to lift or repair your machine, make sure that the lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure that lifting equipment is strong enough for the job.



WARNING:

Repairs. Do not try to do any repairs or any other type of maintenance work you do not understand. Hiab Moffett Forklift Engineers have been trained in all aspects of the Forklift.



WARNING:

Hydraulic Fluid. Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to the suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, seek medical attention immediately.



WARNING:

Hydraulic Pressure. Hydraulic fluid at pressure can cause injury. Release hydraulic pressure before connecting or disconnecting couplings; lower the payload to the ground, stop the engine, then operate the hydraulic controls a few more times to vent residual hydraulic pressure from the system.

1. SAFETY CHECKLIST

Maintenance Safety (continued)



WARNING:

Hydraulic Hoses. Damaged hydraulic hoses can cause accidents. Inspect the hoses regularly for:

- Damaged end fittings
- Chafed outer covers
- Ballooned outer covers
- Kinked or crushed hoses
- Embedded or armoring in outer covers
- Displaced end fittings.



WARNING:

Metal Splinters. When driving pins in or out there could be some flying metal splinters. Use a soft faced hammer or drift to remove and fit metal pins. Always wear safety glasses.



WARNING:

O-Rings, Seals and Gaskets. Badly fitted, damaged or rotted O-rings, seals and gaskets can cause leakages and possible accidents. Renew whenever disturbed, unless otherwise instructed. Do not use Trichloroethane or paint thinners near O-rings and seals.



WARNING:

Electrical Circuits. Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

Do not disconnect the battery when the machine is running otherwise the electrical circuits may be damaged.



WARNING:

Communications. Bad communications can cause accidents. If two or more people are working on a machine, make sure each knows what the others are doing. Before starting the engine make sure others are clear of the danger areas; examples of the danger areas are: the rotating blades and belt on the engine, the attachments and linkages, and anywhere beneath or behind the machine.

1. SAFETY CHECKLIST

Maintenance Safety (continued)



CAUTION:

Temperature. Always turn off the engine and allow it to cool before checking:

- Engine coolant level
- Engine oil level
- Hydraulic oil level



CAUTION:

Maintenance. The maintenance section of this manual outlines the recommended preventative maintenance schedule. Always adhere to the recommended operating and maintenance procedures. Only trained, authorized and experienced personnel should be allowed to operate the Hiab Moffett Truck-Mounted Forklift. Service personnel should read and study this manual, the service manual, the preventative maintenance manual and parts manual in order to gain a thorough understanding of the unit prior to making any repairs. Exercise all necessary safety precautions when performing maintenance covered in the preventative maintenance manual. Ensure that the engine is switched off, the battery is disconnected and the engine and exhaust are cool.



CAUTION:

Booster Supply. The booster supply should not be more than 12 volts. Using a higher voltage supply will damage your machines electrical system. Do not connect two batteries together to give 24 volts. This could burn out the induction manifold heater and damage the starter motor.



CAUTION:

Cleaning. Cleaning metal parts with incorrect solvents can cause corrosion. Use only recommended cleaning agents and solvents.



CAUTION:

Machine Modifications. This machine is manufactured in compliance with legislative and other requirements. It should not be altered in any way which could affect or invalidate any of the requirements. For advice contact your Hiab Moffett Truck-Mounted Forklift Distributor.

1. SAFETY CHECKLIST

Maintenance Safety (continued)



CAUTION:

Welding. Before carrying out any welding on the machine, disconnect the battery and alternator to protect the circuits and components.

The battery must still be disconnected even if a battery isolator is fitted.

Make sure the welding path is kept as short as possible. This prevents high currents being induced into the machine frame or wiring harness.

2. INTRODUCTION

About this Operator Manual

Machine Models

This operator manual provides information for the moving mast range of Hiab Moffett Truck-Mounted Forklifts.

Using This Operator Manual

The illustrations in the operator manual are for guidance only. Where machines differ, the text and/or illustration will specify.

This operator manual is arranged to give a good understanding of the machine and its safe operation. It also contains maintenance information and specification data. Read this operator manual from front to back before using the machine for the first time. Particular attention must be given to all the safety aspects of operating and maintaining the machine.

General warnings in this chapter are repeated throughout this manual as well as specific warnings. Read all the safety statements regularly, so you don't forget them. Remember that the best operators are the safest operators.

Finally, treat this operator manual as part of the machine. Keep it clean and in good condition and ensure it is always located in the operator manual box.

If there anything you are unsure about ask your supervisor or Hiab Moffett Truck-Mounted Forklift Distributor. Do not guess, you or others could be killed or seriously injured.

The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved.

No responsibility will be accepted for discrepancies which may occur between the specifications of the machine and the descriptions contained in this publication.

Using the Machine

This operator manual is intended to familiarize you on the machine, its controls and its safe operation. It is not intended or suitable for use as a training manual for an inexperienced operator. Refer to the MOST manual for this purpose.



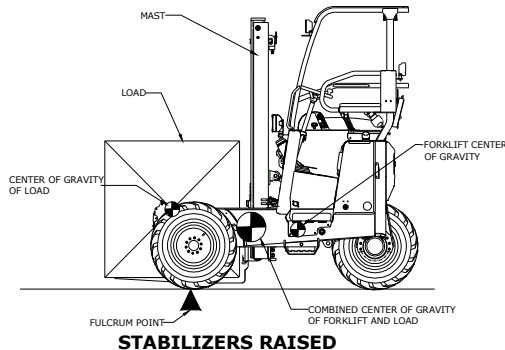
Operator Manual. To use the Hiab Moffett Truck-Mounted Forklift efficiently and safely you must have read and understand the operator manual, be familiar with the machine and be trained and authorized to use it.

2. INTRODUCTION

The Hiab Moffett Truck-Mounted Forklift

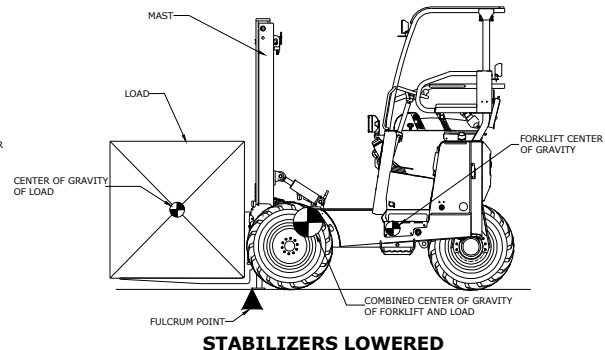
Machine Description

The Hiab Moffett Truck-Mounted Forklift is a three wheeled, non-counterbalanced forklift capable of being transported on the rear of a truck or trailer. Its short turning radius and rear wheel steer make it extremely maneuverable in confined spaces. The forklift is equipped with a mast that can move in and out on a mast carriage. The mast is fitted with a double acting lift cylinder which means a load can be lifted on the forks by the full bore side of the cylinder but also that the machine can be lifted for truck mounting using the rod side of the cylinder.



Concept

Unlike a conventional forklift the Hiab Moffett Truck-Mounted Forklift does not have a counterweight at the rear; instead it uses its own weight to counter the load. Normally the front fulcrum for the machine is located under the front tire. By lowering the stabilizers this fulcrum is moved forward and with the mast extended this allows the forklift's weight to counter the capacity to be lifted. Once the load has been picked up, the mast is retracted; bringing the load into the frame of the forklift. At this stage the stabilizers can be raised and the machine can travel with the load.

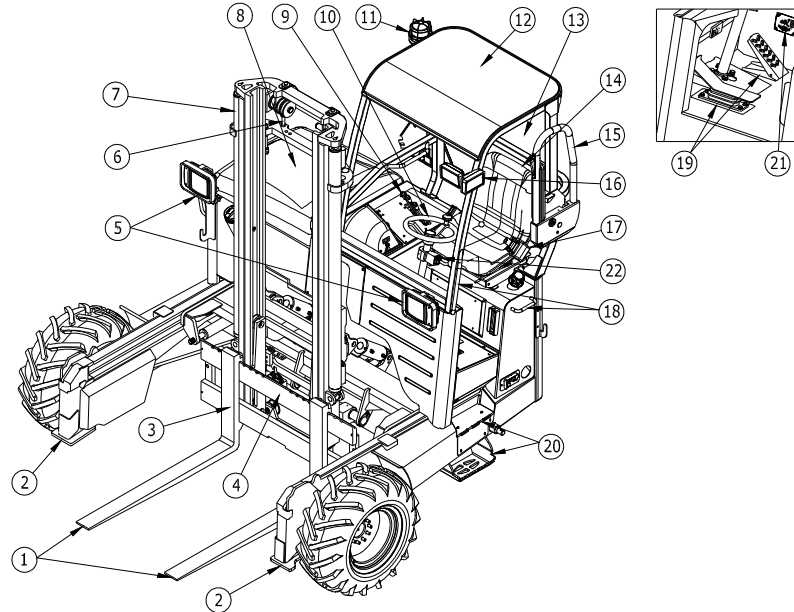


2. INTRODUCTION

Major Components

M40 and M50 Lite Range

1. Forks
2. Stabilizers
3. Fork Face
4. Fork Carriage
5. Road Lights
6. Lift Chains
7. Mast
8. Hood
9. Hydraulic Controls
10. Steering Wheel
11. Beacon
12. Overhead Guard
13. Operator's Compartment
14. Seat
15. Side Guard
16. Work Light
17. Seatbelt
18. Grab Handles
19. Foot Pedals
20. Steps
21. Serial plate
22. Forward/Reverse Lever
(Option)

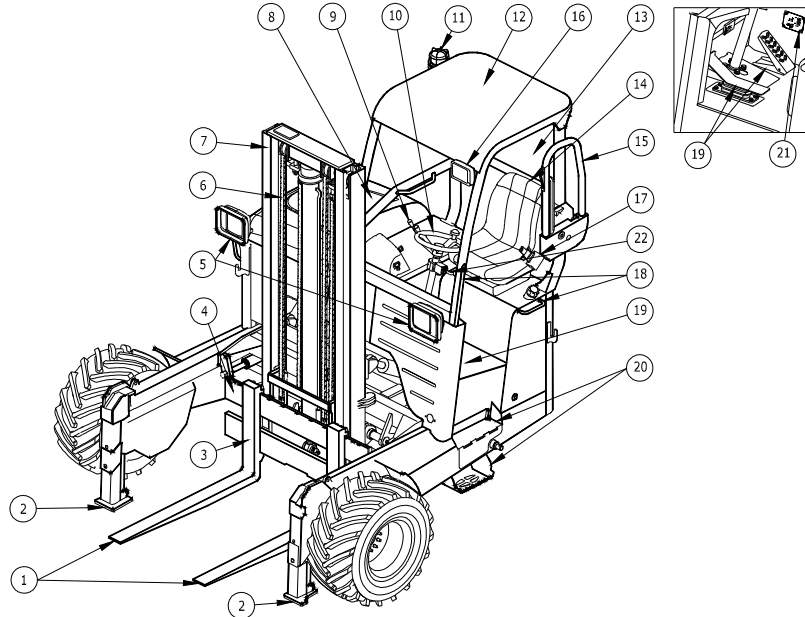


2. INTRODUCTION

Major Components (continued)

M50 Range

1. Forks
2. Stabilizers
3. Fork Face
4. Fork Carriage
5. Road Lights
6. Lift Chains
7. Mast
8. Hood
9. Hydraulic Controls
10. Steering Wheel
11. Beacon
12. Overhead Guard
13. Operator's Compartment
14. Seat
15. Side Guard
16. Work Light
17. Seatbelt
18. Grab Handles
19. Foot Pedals
20. Steps
21. Serial plate
22. Forward/Reverse Lever
(Option)



2. INTRODUCTION

Identifying Your Machine

Serial Plate: This is located in the operator's compartment and it gives the following information:

Type: This is the machine model. i.e. M50 (example below).

Serial No: This is a unique number given to all machines.

E 24 054 8

E Year of manufacture.
24 Week number.
054 Sequential number.
8 Machine model.

Rated Capacity: The rated lifting capacity of the machine with the mast carriage fully extended and stabilizers down.

Load Center: Load center of rated capacity.

Unladen Weight: The gross weight of the machine.

Date: The date of manufacture of the machine.

266136	TYPE	
	SERIAL No.	
RATED CAPACITY		lbs
LOAD CENTER		ins
UNLADEN WEIGHT		lbs
DATE		
____MANUFACTURED BY____		
MOFFETT ENGINEERING LTD.		
ARDEE ROAD, DUNDALK, Co. LOUTH, IRELAND.		
TEL: + 353 42 59500		
FAX: + 353 42 59590		

2. INTRODUCTION

Safety Decals



WARNING:

Decals. If you need eye-glasses for reading, make sure you wear them when reading the safety decals. Decals are strategically placed around the machine to remind you of possible hazards. Do not over-stretch or place yourself in dangerous positions to read the decals. If any decals get damaged or removed, contact your supervisor and have them replaced.



WARNING:

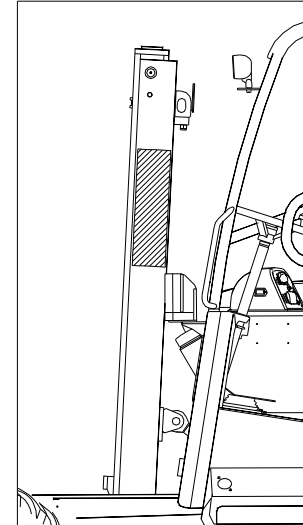
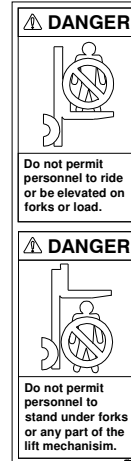
Decals. Decals on the machine warn you of particular hazards. Each decal is attached close to a part of the machine where there is a possible hazard. Read and make sure you understand the safety messages before you work with or around any part of the machine. Keep all decals clean and readable. Replace lost or damaged decals. The decals and their attachment points are shown in this manual. Each decal has a part number printed beside it. Use this number to order a new decal from your Hiab Moffett Truck-Mounted Forklift Distributor.



DANGER:

Forks. Do not permit personnel to stand on or ride on the forks.

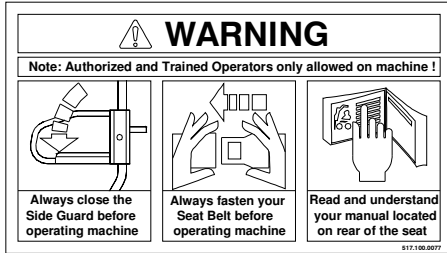
Part Number ENG002



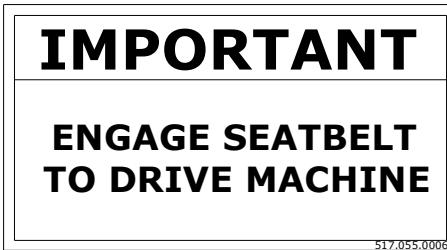
2. INTRODUCTION

Safety Decals (continued)

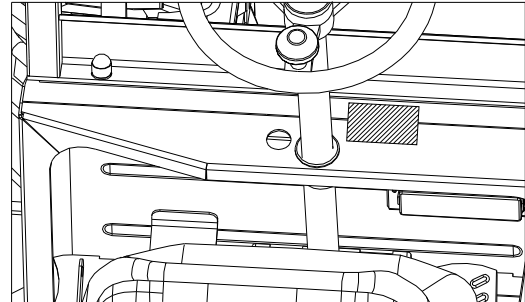
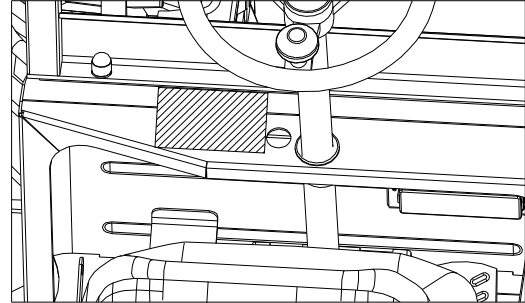
Part Number 517.100.0077



Part Number 517.055.0006



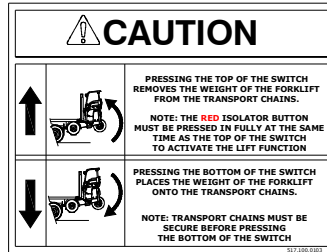
Note: The machine is fitted with an interlocking seatbelt. The machine will not drive unless the seatbelt is engaged.



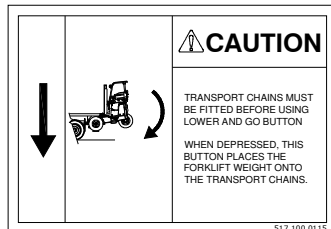
2. INTRODUCTION

Safety Decals (continued)

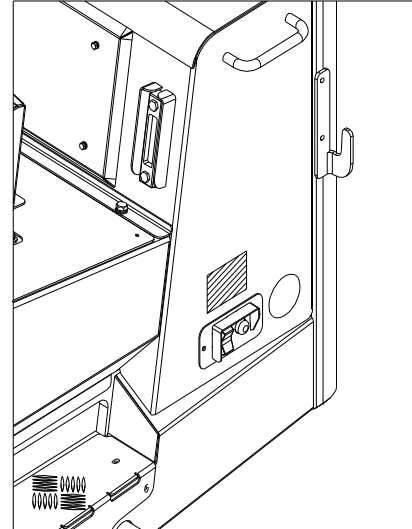
Part Number 517.100.0103



Part Number 517.100.0115



Note: Based on the specification of your machine, either the Groundstart decal; 517.100.0103 or Lower N' Go decal; 517.100.0115 will be fitted.



Note: Lower N' Go only works when ignition key is in the off position.

2. INTRODUCTION

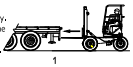
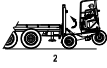
Safety Decals (continued)

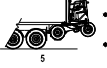
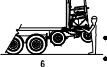
Part Number 517.100.0085

MOUNTING INSTRUCTIONS

TO MOUNT THE MACHINE ON A TRUCK/TRAILER

- Approach the truck/trailer with the mast extended fully. Locate the forks between the fork supports.
- Drive into truck/trailer fully.
- Tilt the mast rearward fully to raise the rear wheel.
- Raise the machine by lowering the forks.

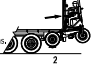



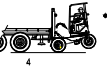
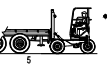
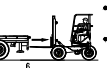




- Retract the mast fully to move the forklift forward into the mounting kit.
- Turn off the engine.
- Disconnect using the 3-point contact method.
- Connect the transport chains.
- Push and hold the lower and go button.
- Climb aboard, cycle the tilt and lift control levers to release the hydraulic pressure.
- Make sure both transport chains are tight.
- Connect suite cable and check all lights.

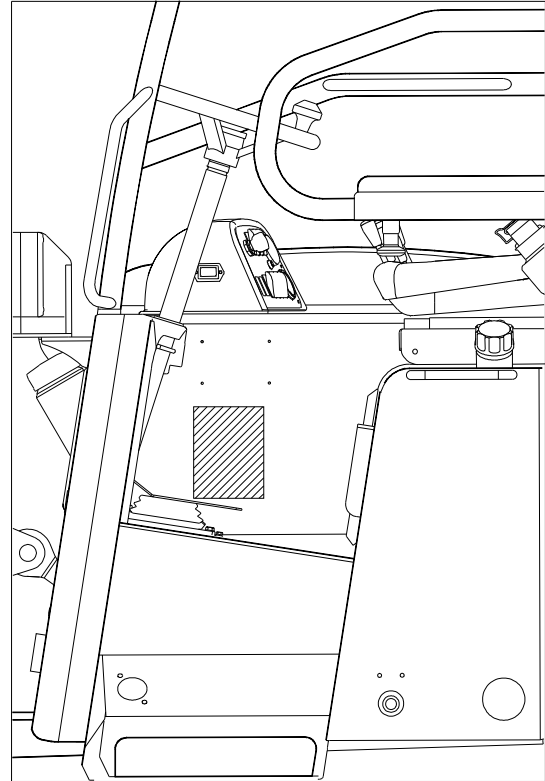
TO DISMOUNT THE MACHINE FROM A TRUCK/TRAILER

- Disconnect the suite cable. Start the engine.
- Raise the machine and tilt the mast rearward.
- Turn off the engine.
- Remove the transport chains. Fasten the seat belt.
- Extend the mast slowly.
- Forward to move the forklift backwards out of the mounting kit.
- Raise the forks to lower the forklift to the ground.
- Tilt the mast forward until the rear wheel touches the ground.
- Raise the forks slightly to pressurize the lift cylinder and clear the fork brace.
- Back up slowly until the forks are clear of the mounting kit.
- Lower the forks as low as possible.

NOTE: - ALWAYS USE THE 3-POINT CONTACT METHOD WHEN ENTERING OR EXITING THE OPERATOR STATION.
 - ENSURE THE PARKING BRAKE IS DISENGAGED IN TRANSPORT.
 - ALWAYS CLOSE THE SIDE GUARD AFTER EXITING THE OPERATOR STATION.
 - ENSURE THE FOLDING DOT BUMPER IS EXTENDED AND PINNED ON BOTH SIDES WHEN THE MACHINE IS NOT MOUNTED.

2. INTRODUCTION

Safety Decals (continued)

Part Number 517.130.0003

INSTRUCTIONS

DO NOT OPERATE THIS MACHINE UNLESS:

- You have read and understand the safety and operating instructions contained in the operator manual and viewed the Moffett Truck-Mounted Forklift Operator Training Video.
- You have been trained in the safe operation of the Moffett Truck-Mounted Forklift.
- You have checked your machine and all functions are operating correctly.

WHEN TRAVELLING WITHOUT A LOAD:

- Keep the mast fully forward and the forks as low as possible. (moving mast)
- Keep the reach device retracted and as low as possible. (static mast)
- Center the fork carriage using the side-shift function. before raising the forklift.

WHEN TRAVELLING WITH A LOAD:

- Keep the forks fully retracted and the load as low as possible. (moving mast)
- Keep the reach device fully retracted and the load as low as possible. (static mast)
- Make all turning manoeuvres slowly and carefully. Do not stop suddenly.
- Travel with the load side-shifted to the center position.

WHEN TRAVELLING ON INCLINES:

- Travel directly up or down, do not travel across an incline.
- Keep the forks facing uphill at all times.
- Engage the diff-lock if operating on slippery slopes.
- Keep the load as low as possible. Do not elevate the load.

WHEN LIFTING A LOAD:

- Check that the stabilizers are fully lowered on a firm and stable surface.
- Do not raise the stabilizers unless the forks are fully retracted. (moving mast)
- Do not raise the stabilizers unless the reach device is fully retracted. (static mast)

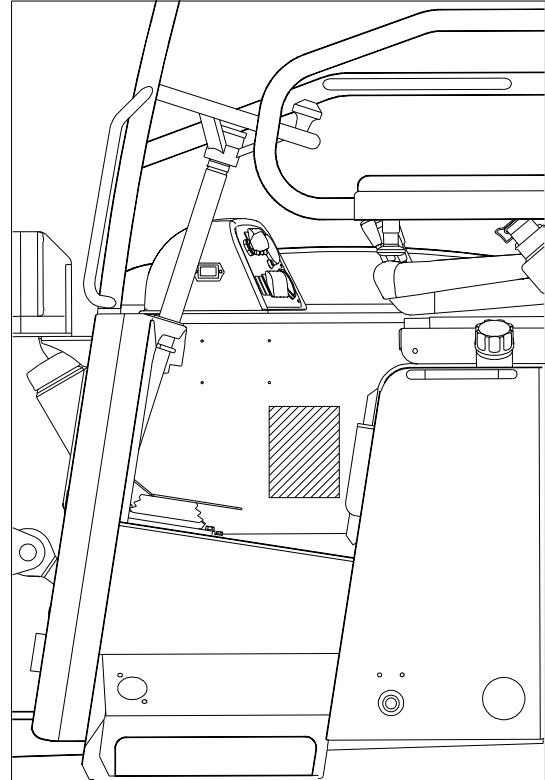
WHEN PLACING A LOAD:

- Do not extend the forks forward unless the stabilizers are fully lowered on a firm and stable surface. (moving mast)
- Do not extend the reach device forward unless the stabilizers are fully lowered on a firm and stable surface. (static mast)

WHEN MOUNTING FOR TRANSPORT:

- Check that the forks are fully engaged in the mounting kit before raising the forklift.

517.130.0003



2. INTRODUCTION

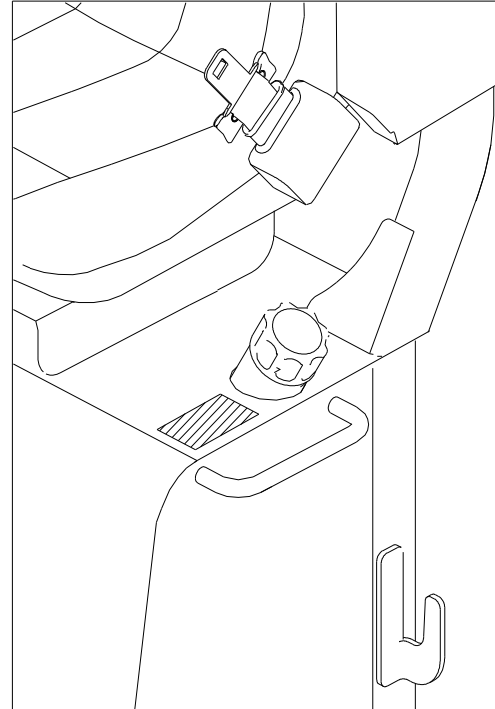
Safety Decals (continued)

Part Number ENG003



WARNING:

Hydraulic Pressure. The hydraulic tank is pressurized and hydraulic oil may be hot. To avoid injury and spillage when removing the cap, stop the engine and remove the cap very slowly.



2. INTRODUCTION

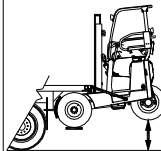
Safety Decals (continued)

Part Number 517.100.0141



Part Number 517.100.0086

PRE-TRIP INSPECTION INSTRUCTION

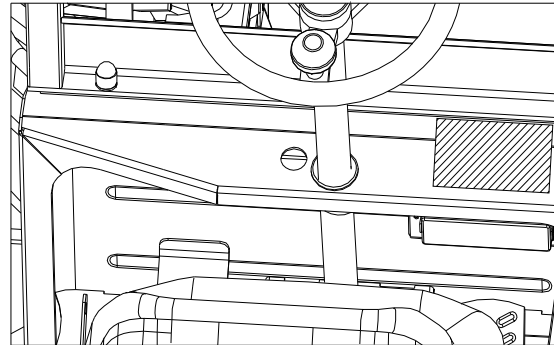
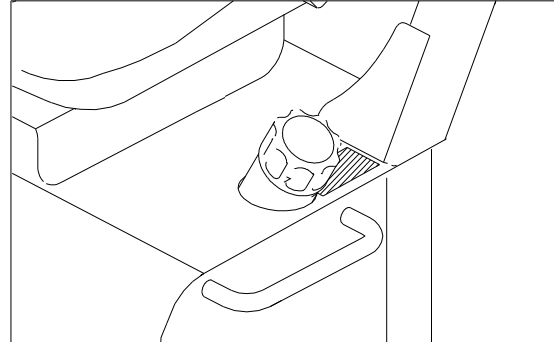


PRIOR TO TRANSPORTING MOFFETT PLEASE ENSURE:

- THE CONSPICUITY TAPE IS IN PLACE AND CLEAN ALSO THAT ALL THE DOT LIGHTS ARE CLEAN AND WORKING.
- THE HYDRAULICS ARE RELAXED AND THE TRANSPORT CHAINS ARE TIGHT SUPPORTING THE WEIGHT OF FORKLIFT.
- THE MOFFETT IS RESTING FIRMLY IN THE MOUNTING KIT POSITIVELY CONTACTING THE WHEEL RESTS AND STOPS.
- THE REAR WHEEL IS POINTING STRAIGHT AHEAD
- THE MACHINE IS LEANING FORWARD WITH A REAR WHEEL GROUND CLEARANCE BETWEEN 15" AND 18".

NOTE: FOR TRAILERS EQUIPPED WITH A FOLDING DOT BUMPER ALWAYS ENSURE IT IS FOLDED & PINNED WHEN THE MOFFETT IS BEING TRANSPORTED. ALSO ALWAYS ENSURE THAT THE DOT BUMPER IS UNFOLDED & PINNED TO FULL-WIDTH WHEN PARKED & UNLOADING OR WHEN NOT TRANSPORTING THE MOFFETT.

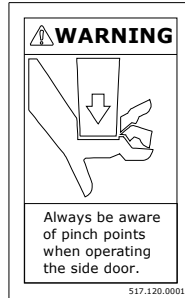
517.100.0086



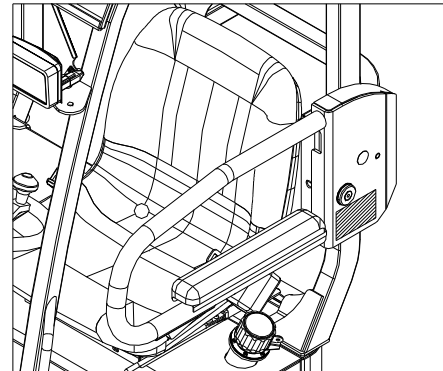
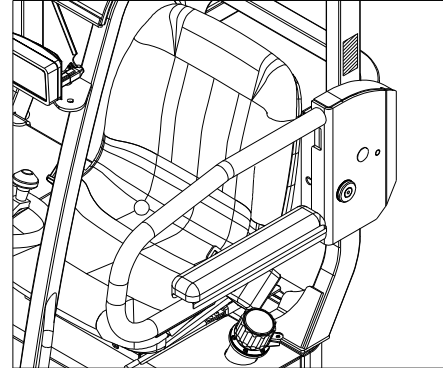
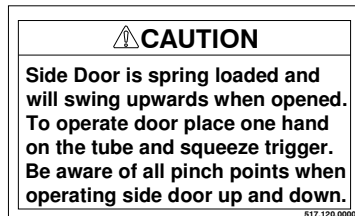
2. INTRODUCTION

Safety Decals (continued)

Part Number 517.120.0001



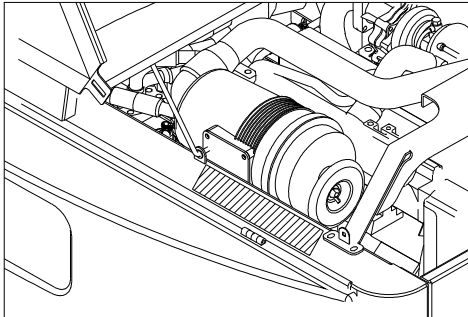
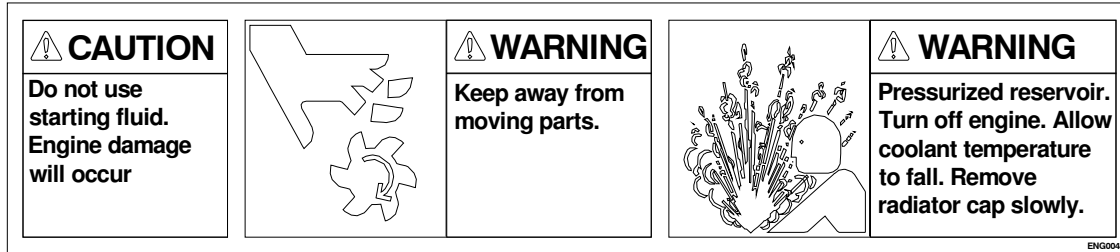
Part Number 517.120.0000



2. INTRODUCTION

Safety Decals (continued)

Part Number ENG004



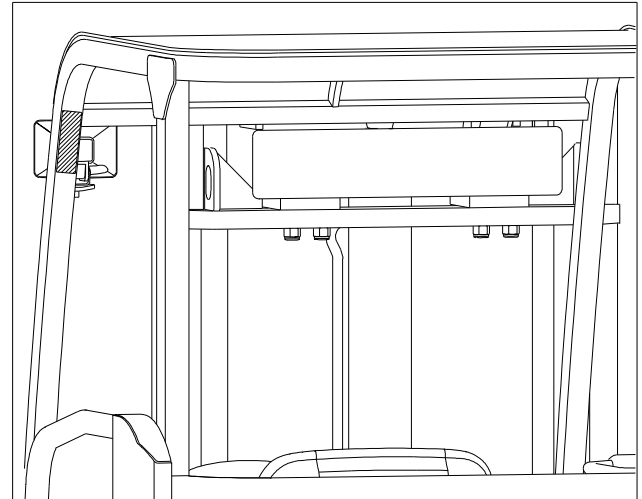
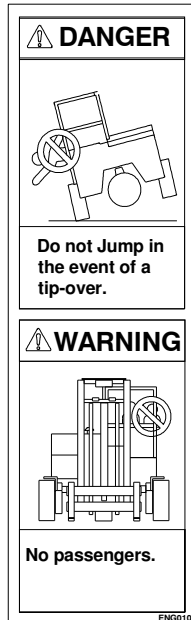
WARNING:

Vapors. Hot coolant, steam and vapors can severely burn. Stop the engine and allow it to cool before removing the radiator cap. When removing the radiator cap, turn it very slowly to allow the pressure to release.

2. INTRODUCTION

Safety Decals (continued)

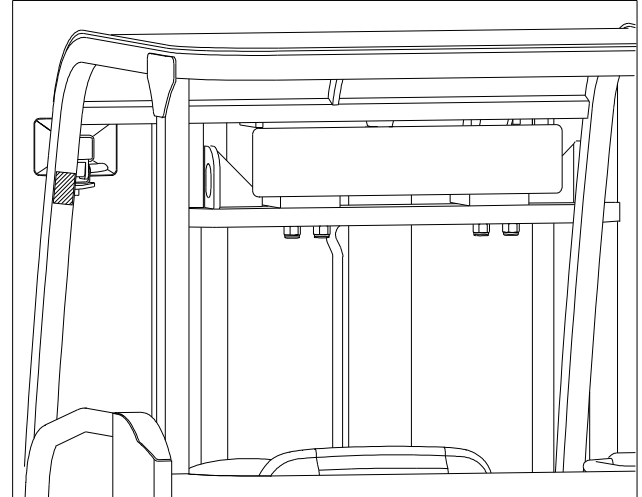
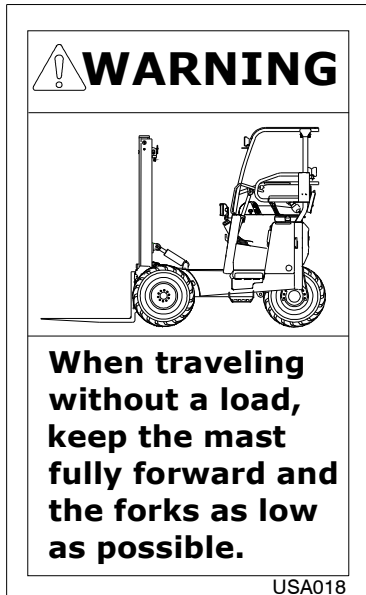
Part No. ENG010



2. INTRODUCTION

Safety Decals (continued)

Part No. USA018



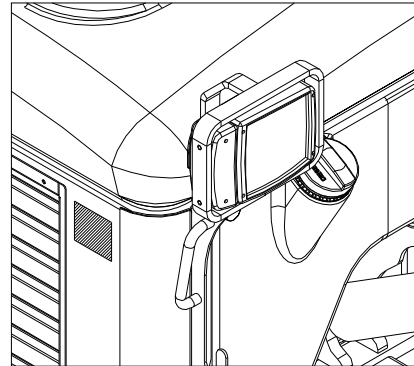
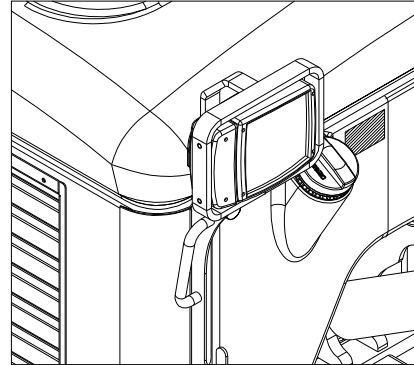
2. INTRODUCTION

Safety Decals (continued)

Part Number 517.999.0147



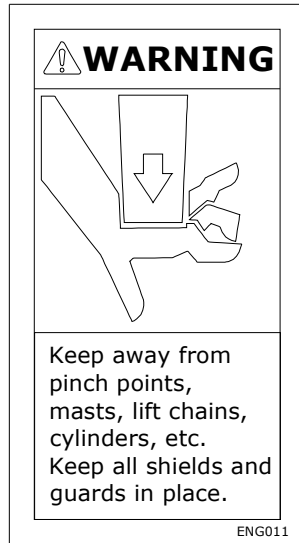
Part Number ENG019



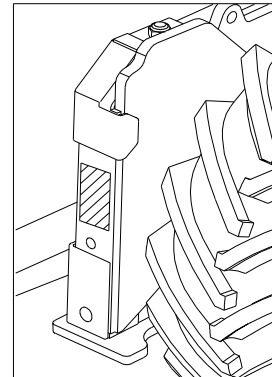
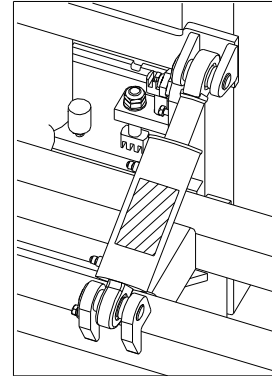
2. INTRODUCTION

Safety Decals (continued)

Part Number ENG011



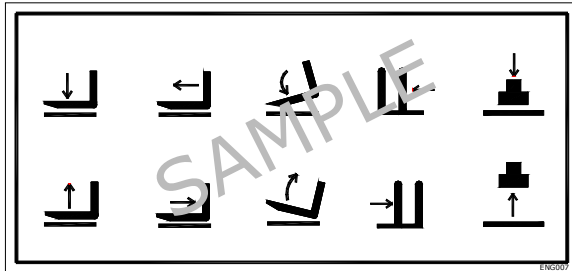
Note: Location of pinch point decals; part number ENG011 on stabilizers and tilt cylinders.



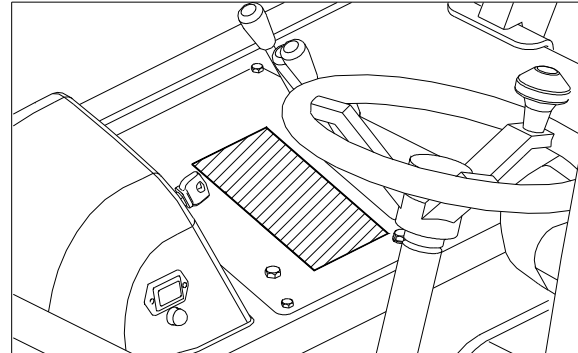
2. INTRODUCTION

Safety Decals (continued)

Part Number ENG007



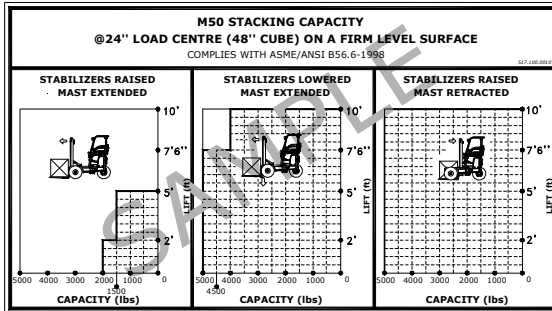
Note: The valve bank and load chart decals in this section are only examples and may differ from those found on your machine.



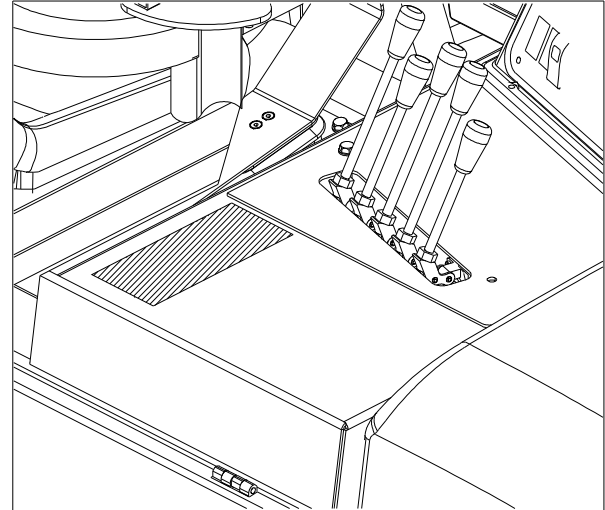
2. INTRODUCTION

Safety Decals (continued)

Part Number 517.100.0010

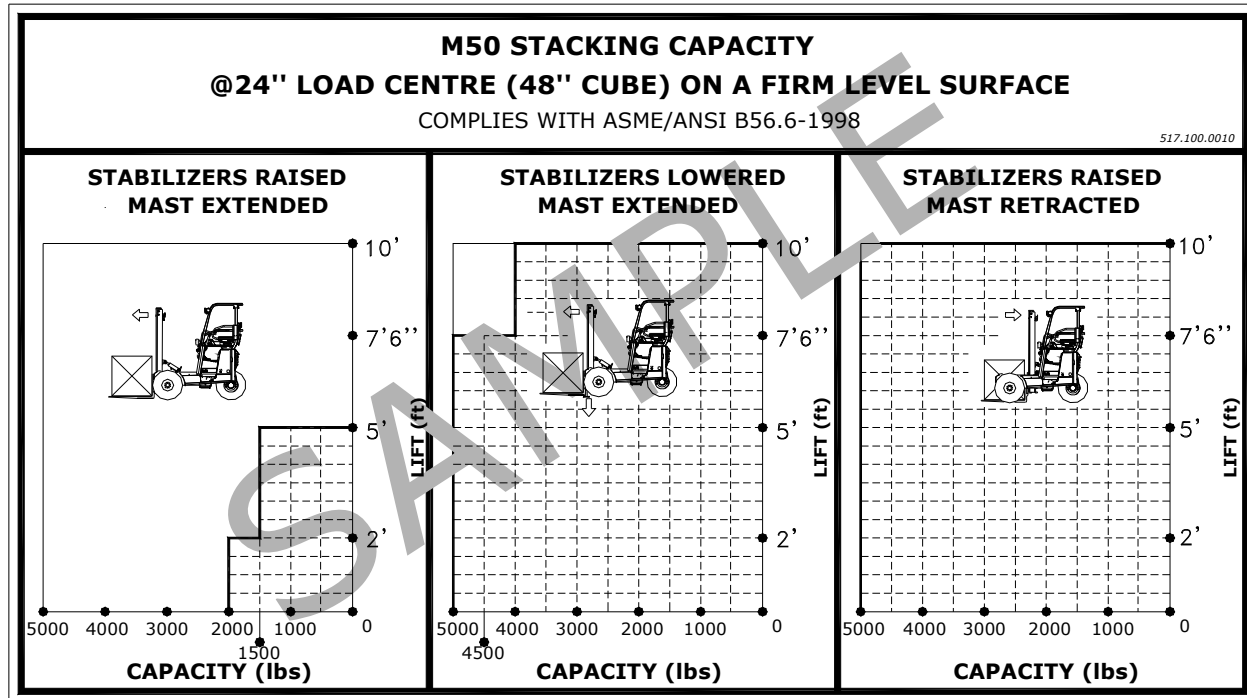


Note: When replacing decals always ensure the correct part number is supplied.



2. INTRODUCTION

Safety Decals (continued)



2. INTRODUCTION

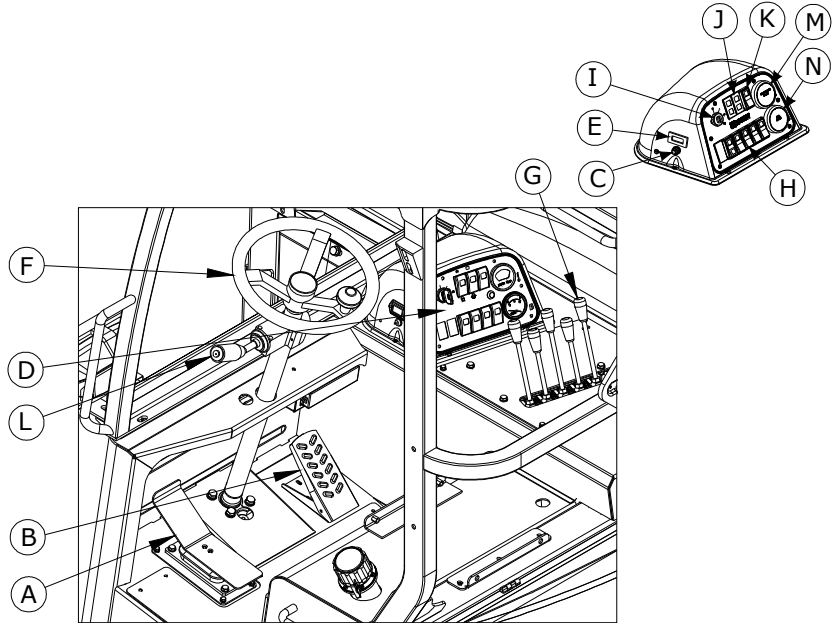
Instruments and Controls

The Hiab Moffett Truck-Mounted Forklift is provided with a set of controls to enable you to operate the machine safely and efficiently.

The instruments and controls are in the following groups:

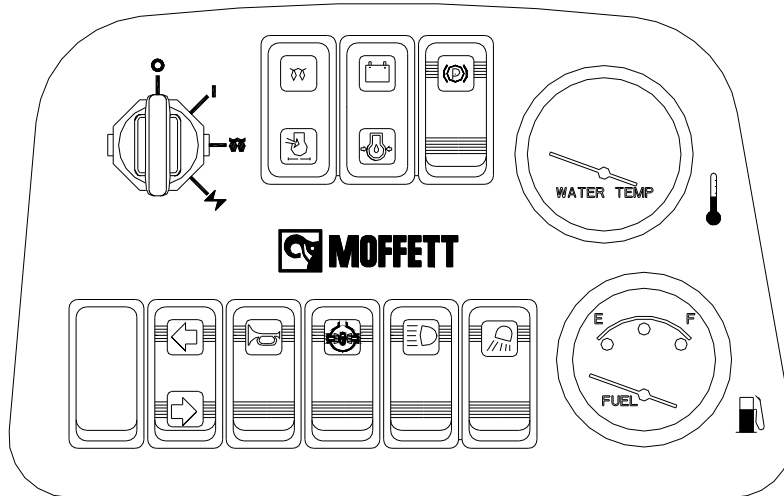
- A** Forward/Reverse Pedal
(Inching Pedal)
- B** Throttle
- C** Starter Reset
- D** Hour Meter
- E** Dash Panel
- F** Steering Wheel
- G** Hydraulic Controls
- H** Switches
- I** Ignition Switch
- J** Warning Lights
- K** Park Brake
- L** Forward/Reverse Lever (See Note)
- M** Temperature Gauge
- N** Fuel Gauge

Note: The forward/reverse lever (item L) is an optional component, when it is fitted the forward/reverse pedal (item A) is replaced with an inching pedal.



2. INTRODUCTION

Instruments and Controls (continued)



-  **ENGINE PREHEATER**
-  **AIR FILTER BLOCKAGE**
-  **BATTERY (NO CHARGE)**
-  **ENGINE OIL PRESSURE LOW**
-  **PARK BRAKE ENGAGED**
-  **INDICATORS**
-  **HORN**
-  **DIFF-LOCK ENGAGED**
-  **ROAD LIGHTS**
-  **WORK LIGHTS**

Note: For 4-Way dash configuration, see section C3.

2. INTRODUCTION

Instruments and Controls (continued)

Ignition Switch / Pre Heater

When turned clockwise, the ignition switch sends electrical power to the engine starter motor and glow plugs, thus starting the machine.

Park Brake

The park brake should be engaged when the forklift is parked. It should **NOT** be engaged when the forklift is in transport on the rear of a truck or trailer.

Note: If the seatbelt is not connected the park brake is automatically applied. Ensure that the seatbelt is applied when truck mounting.

Flashing Beacon

The Hiab Moffett Truck-Mounted Forklift is fitted with a flashing beacon. The beacon is activated when the ignition is turned to the ON position. If the beacon fails to work, do not operate the machine. Contact your supervisor.

Diff-Lock

When activated this transfers equal flow to all 3 wheels to improve traction.

Horn

The horn is used to alert people of your maneuvers.

Hour Meter

Indicates the engine's operating hours.

Indicators

The indicator switch is located on the dash panel. Pushing the top of the switch activates the left indicators, pushing the bottom of the switch activates the right indicators. Always turn off the indicators once you have finished a maneuver.

Road Lights

Road lights should be used when traveling on a public road.

Note: Low beam should always be used when approaching other users of the road.

Work Lights

Work lights should be used on site when visibility is poor. They may also be used to improve visibility if the road lights are blocked while carrying a load.

Water Gauge

The water gauge is used to display the operating temperature of the engine.

Fuel Gauge

The fuel gauge indicates the amount of fuel in the fuel tank.

2. INTRODUCTION

Instruments and Controls (continued)

Starter Reset

The starter reset is a thermostatic trip switch that prevents the starter motor from overheating. If this trips; wait 30 seconds push the reset button and retry starting the machine.

Air Filter Blockage Light

The air filter blockage light indicates if there is a blockage in the air filter. When this light is illuminated the Hiab Moffett Truck-Mounted Forklift should be stopped immediately and the engine switched off. The air filter should be checked as per the maintenance section of this manual and cleaned if necessary.

Battery Light

The battery light indicates if there is no battery charge. This lights up when the ignition is switched to the preheat position and should go out when the machine is started.

Engine Oil Pressure Light

The engine oil pressure light indicates if the engine oil pressure is low. This lights up when the ignition is switched to the preheat position and should go out when the machine is started. If this light is illuminated during the operation of the Hiab Moffett Truck-Mounted Forklift, the forklift should be stopped immediately and the engine switched off. The engine oil level should be

checked as per the maintenance section of this manual and refilled if necessary. If needed take the forklift out of operation and have it repaired.

Engine Temperature Light

The engine temperature light indicates if the engine temperature is too hot. When this light is illuminated the Hiab Moffett Truck-Mounted Forklift should be stopped immediately and the engine switched off. The engine should be allowed to cool before checking the engine coolant level as per the maintenance section of this manual. The engine coolant should be refilled if necessary. If needed take the forklift out of operation and have it repaired.



CAUTION:

Warning Lights. If at any point during the operation of the Hiab Moffett Truck-Mounted Forklift one or more of the dash panel warning lights are lit, the forklift must be stopped immediately and the engine shut off. Serious engine damage could occur if the forklift is operated with any of the warning lights on.

2. INTRODUCTION

Transmission Controls

The machine can be fitted with the following drive control options:

1. **Standard Pump** – Control comprises: Hydraulic foot operated forward/reverse pedal, foot operated accelerator Pedal
2. **Anti-Stall Pump** – Control comprises: Hydraulic foot operated forward/reverse pedal, foot operated accelerator pedal
3. **Automotive Pump** – Control comprises: Column shift forward/reverse lever, foot operated inching/brake pedal, foot operated accelerator pedal.

2. INTRODUCTION

Transmission Controls (continued)

1. Standard Pump - Hydraulic Foot-Pedal Control

With foot-pedal control, the Hiab Moffett Truck-Mounted Forklift is equipped with two foot pedals. The right pedal is the accelerator pedal which controls the engine RPM (speed). The left pedal is the hydraulic pedal which controls the forward and reverse movement.

Accelerator Pedal – Engine RPM

This pedal is pressed down to increase engine RPM. It should be used to keep the engine at a constant RPM and should not be used to adjust the travel speed of the machine. The engine RPM also affects the speed of the hydraulic functions.



WARNING:

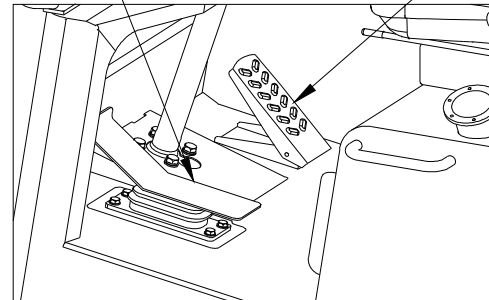
Controls. If the forward/reverse pedal does not return to the neutral position, do NOT use the machine and contact your supervisor.

Forward/Reverse Pedal – Traveling Speed

This pedal controls the forward and reverse movement of the machine. The machine will not move if you do not press the hydraulic pedal. Depress the pedal (toe) forward to move the machine forward. Depress the pedal (heel) back to move the machine in reverse.

By returning the pedal to the mid-point (neutral) the machine will stop. This pedal is also used to control the speed of the machines movement. The further the pedal is pressed in either direction, the faster the machine will travel. When traveling on gradients or on rough terrain, forward/reverse pedal movement should be reduced and engine RPM increased.

FORWARD/REVERSE PEDAL ACCELERATOR PEDAL



2. INTRODUCTION

Transmission Controls (continued)

2. Anti-Stall Pump – Hydraulic Foot-Pedal Control.

The anti-stall hydrostatic drive pump greatly enhances smooth, slow travel which is important when operating with large or long loads.

When driving; the operator controls the speed and torque using the accelerator pedal only, while keeping the forward/reverse pedal fully depressed in the direction of travel.

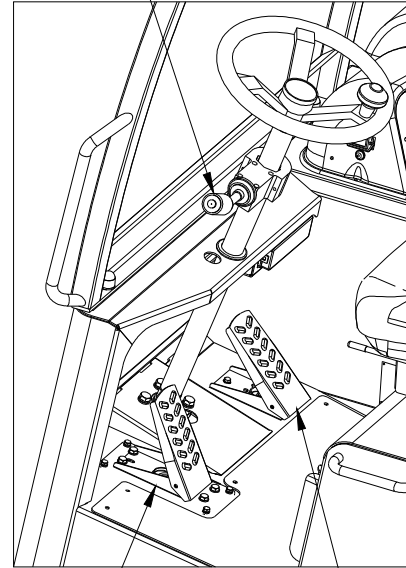
This capability is due to the pump being able to sense the engine load and self-adjust to the conditions accordingly (similar to an automatic transmission in an automobile where you do not need to shift up or down).

3. Automotive Pump – Column Shift Control.

With automotive control the Hiab Moffett Truck-Mounted Forklift is equipped with two foot pedals and a column mounted forward/reverse hand lever. The right pedal is the accelerator pedal which controls both engine RPM and speed of travel. The left pedal is the inching/brake pedal which is used to stop the machine or move the machine slowly.

Note: The engine will not start unless the forward/reverse lever is in the neutral position while turning the key.

FORWARD/REVERSE LEVER



INCHING/BRAKE PEDAL ACCELERATOR PEDAL

The accelerator pedal is used to control both engine RPM and speed of travel of the machine. The accelerator pedal regulates RPM but will not move the machine until the forward/reverse hand lever is activated.

2. INTRODUCTION

Transmission Controls (continued)

Operation

TO MOVE THE MACHINE FORWARD – Move the forward/reverse lever to the forward position and depress the accelerator pedal – the machine will move forward.

TO MOVE THE MACHINE BACKWARD – Move the forward/reverse lever to the backwards position and depress the accelerator pedal – the machine will move backwards.

TO STOP THE MACHINE – Release the accelerator pedal and the machine will stop. Alternatively, depressing the inching/brake pedal fully will stop the machine more quickly.

Note: The higher the engine speed the faster the machine will travel. When climbing a gradient or hill, the operator should keep the accelerator pedal depressed because the speed of the machine will reduce as the gradient increases.

The engine will not start unless the forward/reverse lever is in the neutral position while turning the key. The machine will not drive unless the interlocking seatbelt is connected.

2. INTRODUCTION

Transmission Controls (continued)

Inching/Brake Pedal

This pedal has two functions;

1. Brake pedal – to stop the machine quickly.
2. Inching pedal – to allow small controlled movements of the machine regardless of how high the engine speed is.

The inching/brake pedal allows the operator to control the travel speed of the Hiab Moffett Truck-Mounted Forklift while keeping engine speed up to raise and tilt the mast. The operator should keep the forklift RPM high to raise the mast quickly.

To stop the forward movement of the Hiab Moffett Truck-Mounted Forklift while maintaining high engine RPM, depress the inching/brake pedal fully and the machine will stop moving. By releasing the inching/brake pedal slightly, the machine will move slowly. To stop its movement depress the pedal fully again. By gradually releasing the inching/brake pedal, the machine will gradually increase its travel speed.

Because of its ability to stop the machine, the inching/brake pedal can be used as a brake pedal. By fully depressing the inching/brake pedal the machine will stop, irrespective of the engine speed.

This pedal is also referred to as a creeper/brake pedal for its ability to move the machine slowly even with high engine RPM. This permits the precise, controlled

creeping movements necessary when lifting or placing a load.

2. INTRODUCTION

Hydraulic Levers

The Hiab Moffett Truck-Mounted Forklift is equipped with hydraulic levers to control movement of the mast, forks and stabilizers. STUDY THE VALVE BANK DECAL FOR YOUR HIAB MOFFETT TRUCK-MOUNTED FORKLIFT BEFORE OPERATING THE MACHINE. UNDERSTAND THE FUNCTION OF THE HYDRAULIC LEVERS FULLY BEFORE OPERATING THE MACHINE.

- A. Forks – Raise and Lower:** This lever raises and lowers the forks. Forward movement of the lever will lower the forks down. Backward movement of the lever will raise the forks up.
- B. Mast – Extend and Retract:** This lever moves the mast forwards and backwards. Forward movement of the lever extends the mast forward, away from the operator (out). Backward movement of the lever retracts the mast back towards the operator (in). When placing a load, the mast should be extended only when the stabilizers are fully lowered.

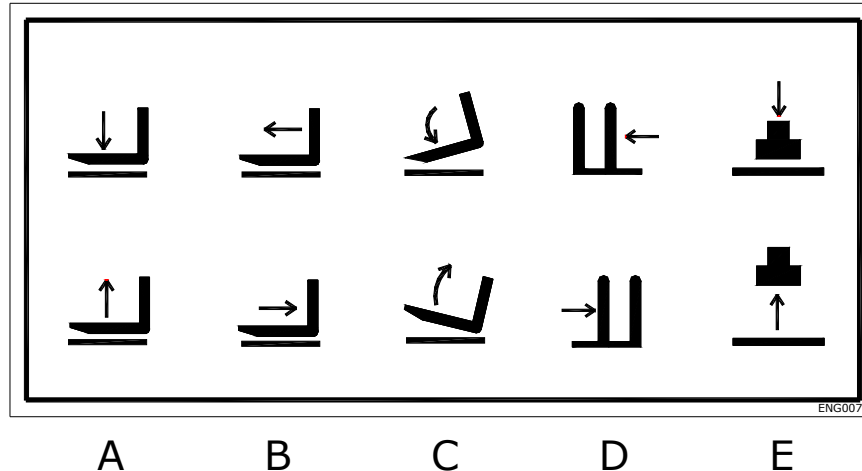
- C. Tilt – Forward and Back:** This lever tilts the mast forwards and backwards. Forward movement of the lever tilts the mast forward (forks down). Backward movement of the lever tilts the mast rearward (forks up). Loads should normally be transported with the mast tilted back.
- D. Side-Shift – Left and Right:** This lever moves the mast to the right or left. Forward movement of the lever shifts the mast to the left. Backward movement of the lever shifts the mast to the right.
- E. Stabilizers – Lower and Raise:** This lever raises and lowers the stabilizing legs. When placing a load, the stabilizers must always be fully lowered before moving the mast forward. Forward movement of the lever will lower the stabilizers down. Backwards movement of the lever raises the stabilizers up. When lifting a load, never raise the stabilizers until the mast is fully retracted.

2. INTRODUCTION

Hydraulic Levers (continued)

Note: When the ground is not firm enough to support the stabilizers extra support plates must be used of sufficient size and strength to ensure they do not sink, bend or buckle during operation. A second person may be required to check the support plates. If at any time the stabilizers or pads show signs of sinking, the procedure must be stopped immediately, the mast fully retracted and an alternative location found. If in doubt prior to or during an operation on loose, uneven or soft surfaces, stop. Always consider safety first.

Note: If during the lifting operation the stabilizers start to slip the load must be lowered immediately and a smaller load center lifted or improved ground conditions found.



3. CENTER OF GRAVITY

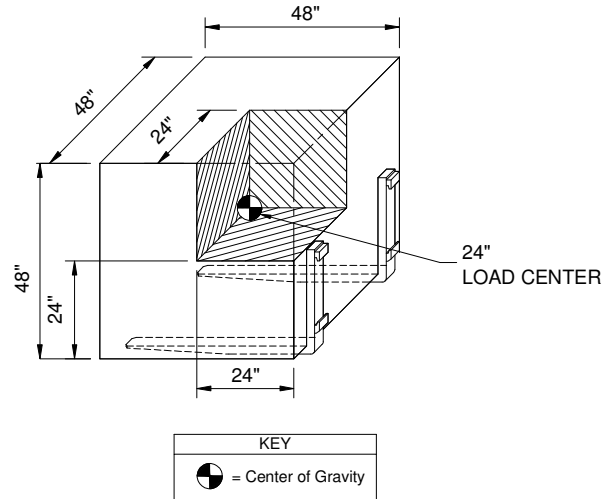
Basic Principles

Make the right start – know the load capacities of your Hiab Moffett Truck-Mounted Forklift. The rated capacity of the machine is the weight that the machine is capable of lifting under safe operating conditions. Remember that the type of terrain or ground conditions can reduce the amount you should lift.

The shape of the load will also affect the lift capacity of the machine. Inspect the load you intend to lift. Make sure that you know the weight of the load. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy split the load and restack it. It is common for a large capacity conventional forklift to be used when loading trucks or trailers in a yard. Do not expect the Hiab Moffett Truck-Mounted Forklift to lift the load just because a conventional yard forklift initially loaded it.

Remember that if attachments are used other than the standard forks which are normally furnished with the Hiab Moffett Truck-Mounted Forklift, such attachments will reduce the lifting capacity and affect other machine handling characteristics.

With the Hiab Moffett Truck-Mounted Forklift, the rated capacity is based on a cube measuring 48" in all three dimensions with the center of gravity in the center of this cube. This is known as a 24" load center. If the dimensions of the load increase or the position of the center of gravity or load moves forward, the lifting capacity of the machine will be reduced.



3. CENTER OF GRAVITY

Sample Load Chart

Refer to the load chart in the operator's compartment of your machine. Study it carefully and make sure you understand it before attempting to operate the Hiab Moffett Truck-Mounted Forklift. Remember that the weight to be lifted and the height it is lifted to must not exceed the rated capacity of your machine.

The load capacity chart relating to your particular model gives details of what your machine can lift with a 24" load center under the following conditions:

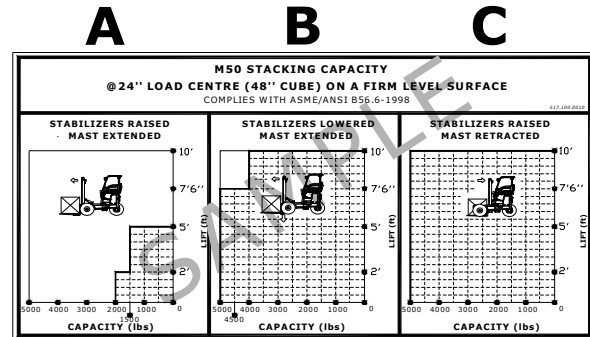
- A. Stabilizers raised and mast fully extended forward.
- B. Stabilizers fully lowered and mast fully extended forward.
- C. Stabilizers raised and mast fully retracted backwards.

The following sample load capacity chart illustrates the rated stacking capacity of a M50 Hiab Moffett Truck-Mounted Forklift equipped with standard forks.



DANGER:

Capacity. Never exceed the forklift's rated capacity or the machine may become unstable.



Green Area Indicates Safe Lifting Range

Note:

1. The load capacity may vary depending on the attachments used. Consult the load chart on your machine for the actual rated capacity.
2. Other Hiab Moffett Truck-Mounted Forklift models have different load capacities. Refer to the load capacity chart on your machine.
3. If the existing load capacity chart becomes damaged, lost or illegible, replace the load capacity chart. Load capacity charts are available from your dealer.

3. CENTER OF GRAVITY

Comparison between a Conventional Forklift and a Hiab Moffett Truck-Mounted Forklift

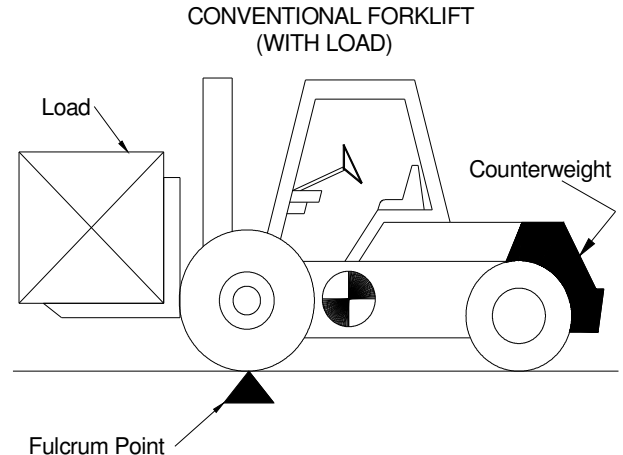
Conventional Forklift

A conventional forklift is designed to lift and carry the load in front of the wheels. The load remains in this position during transit. The conventional forklift is able to lift the load in this position because it has a large rear-mounted counterweight to counterbalance the load.

A conventional forklift is known as a counterbalanced forklift.

With a conventional counterbalanced forklift, the position of the load remains stationary relative to the front wheels. The mast does not move forward and backward like a Hiab Moffett Truck-Mounted Forklift. The front wheels of a conventional counterbalanced forklift are the points of pivot known as the fulcrum point.

If the load exceeds the rated capacity of the forklift, the weight of the load may overcome the counterbalance effect and cause the load and the forklift to tip forward.



3. CENTER OF GRAVITY

Comparison between a Conventional Forklift and a Hiab Moffett Truck-Mounted Forklift (continued)

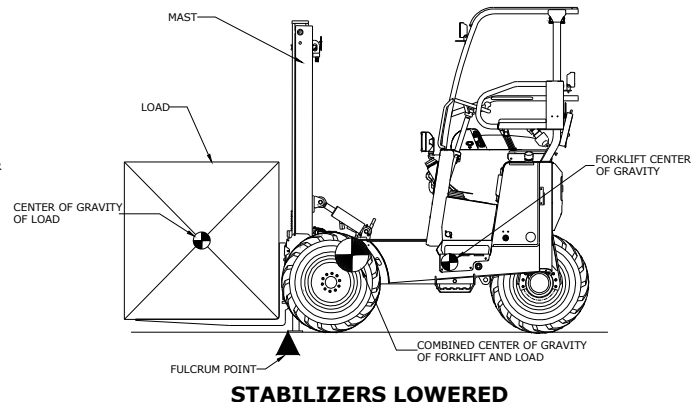
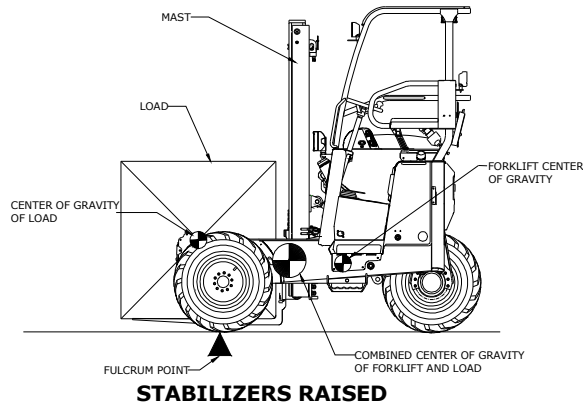
Hiab Moffett Truck-Mounted Forklift

An important feature of the Hiab Moffett Truck-Mounted Forklift is that it is light enough to be transported on the rear of a truck or trailer. Unlike a conventional forklift, it does not have a rear-mounted counterweight. The Hiab Moffett Truck-Mounted Forklift has a reach mast and hydraulic stabilizers. With the stabilizers raised the fulcrum point is at the front wheel.

When the stabilizers are fully lowered, the fulcrum point moves forward to the point of contact between the stabilizers and the ground.

This action increases the counterbalance effect and enables the Hiab Moffett Truck-Mounted Forklift to lift the rated capacity with the mast in the forward position without the need for a large counterweight.

When placing a load, the stabilizers must always be fully lowered before the mast is extended. When lifting a load, the stabilizers must be fully lowered and raised only after the mast is retracted fully. When carrying a load, the mast must always be retracted fully.



4. OPERATING PROCEDURES

Using the Machine

Before Using the Machine

Before you begin to operate the Hiab Moffett Truck-Mounted Forklift you must have read and understand and follow all the information in this manual, be familiar with the machine and be trained and authorized to use it. Each day you operate the machine; complete all of the daily inspection checks as detailed in the MAINTENANCE section of this operator manual.

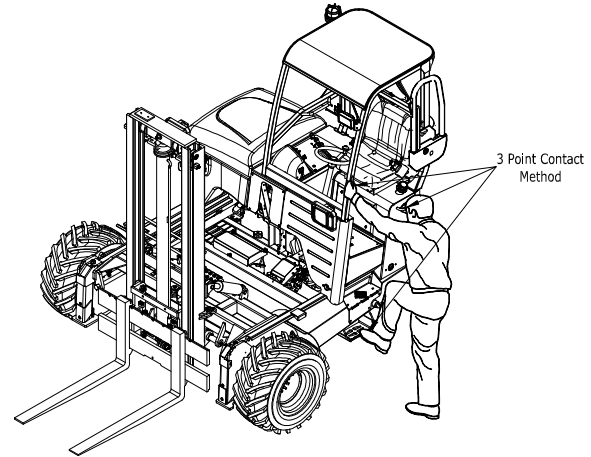
Entering the Operator's Compartment

Always climb aboard the vehicle properly. Use the "three point contact" method and face the machine when you climb aboard or dismount the Hiab Moffett Truck-Mounted Forklift. "Three point contact" means that three out of four arms and legs are in contact with the machine at all times during mount and dismount. Clean your shoes and wipe your hands before climbing on. Use the grab-handles and step when climbing on or off. Do not use the side guard as a grab-handle. Make sure the side guard is secured before mounting or dismounting. Never climb aboard or dismount when the engine is running or when the machine is moving. Never use the control levers or the steering wheel as a hand-hold when climbing on or off the Hiab Moffett Truck-Mounted Forklift.



WARNING:

Engine. Never climb aboard or dismount from the machine with the engine running.



4. OPERATING PROCEDURES

Using the Machine (continued)



DANGER:

Power Lines. Never approach power lines with any part of the forklift as electrocution could result.



WARNING:

Operator Manual. Operating or maintaining the machine without studying this operator manual can cause accidents. Read the safety instructions before operating this machine. If you do not understand anything, ask your Hiab Moffett Truck-Mounted Forklift Distributor or supervisor to explain it. Keep this operator manual clean and in good condition. Do not operate the machine without an operator manual in the operator's compartment, or if there is anything on the machine you do not understand.



WARNING:

Care and Alertness. All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be aware of potential hazards.



WARNING:

Alcohol and Drugs. It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.



WARNING:

Working Environment: Remember that rain, snow, ice, mud, loose gravel and uneven or soft ground could change the operating capabilities and could cause you to lose control or cause the forklift to tip over.



WARNING:

Seatbelt. The operator's compartment is designed to give you protection in an accident. If you do not wear your seatbelt you could be thrown out of the machine. You must wear a seatbelt when using the machine. Fasten the seatbelt before starting the machine.

4. OPERATING PROCEDURES

Using the Machine (continued)



WARNING:

Machine Condition. A defective machine can cause accidents. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this operator manual are completed before using the machine.



WARNING:

Visibility. Accidents can be caused by working in poor visibility. Use the work lights on the machine to improve visibility. Do not operate the machine if you cannot see properly.



WARNING:

Practice. Do not perform unfamiliar operations without first practicing them. Practice away from the work site on a clear area. Keep other people away. Do not perform new operations until you can do them safely.



WARNING:

Controls. Do not control the machine from outside the operator's compartment. Operate the control levers only when you are correctly seated inside the operator's compartment with the seatbelt fastened.



WARNING:

Passengers. Passengers in or on the machine can cause accidents. The Hiab Moffett Truck-Mounted Forklift is a one person machine. Do not carry passengers.

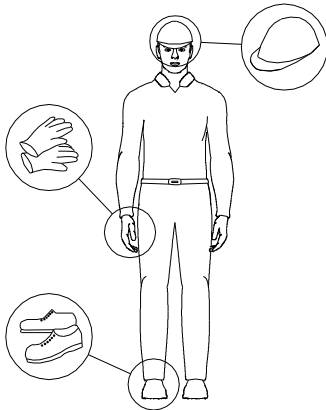
4. OPERATING PROCEDURES

Using the Machine (continued)



WARNING:

Clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are; a hard hat, safety shoes, safety glasses, a well fitting overall, ear protectors and industrial gloves. Keep cuffs fastened. Do not wear a neck tie or scarf. Keep long hair restrained.



CAUTION:

Regulations. Obey all laws, work site and local regulations which affect you and your machine.



CAUTION:

Hydraulic Function. Never continue to operate a hydraulic function lever after the function has reached the end of its travel.

4. OPERATING PROCEDURES

Overhead Guard

The overhead guard is designed to give you protection in an accident. You must always wear your seatbelt and close the side guard or you could be thrown about inside the operator's compartment, or thrown out of the machine and crushed. Always fasten the seatbelt and close the side guard before starting the machine.

If the machine is involved in an accident, hold onto the steering wheel tightly, brace your feet and lean away from the impact. When the machine comes to a rest, switch the starter key to the OFF position, unfasten the seatbelt and exit the machine.

Never carry out any unauthorized alterations to the overhead guard, e.g. lowering the roof height, drilling or welding on brackets for a fire extinguisher, radio aerial or other equipment, without first having discussed the alteration with the engineering personnel at Cargotec Ireland's engineering department.

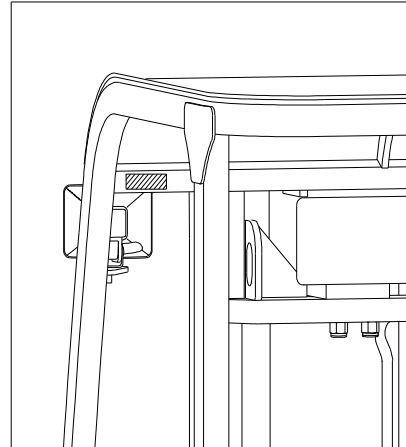
Any modification can adversely affect the structural integrity of the overhead guard and could cause the overhead guard to fail in the event of an accident.

Location of Overhead Guard Conformity Plate

Part Number 517.056.0001

**This Overhead Guard Conforms
To the ROPS & FOPS Requirements
of ISO 6055 & ASME/ANSI B56.6**

517.056.0001



4. OPERATING PROCEDURES

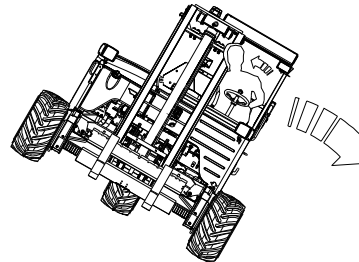
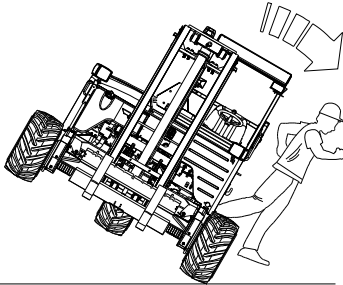
Rollover



DANGER:

Rollover. Any machine that is used to lift and move loads may tip over if not operated correctly. No matter how experienced the operator is, accidents can still happen if the operator does not remain vigilant. Always be aware of the potential danger involved when using the Hiab Moffett Truck-Mounted Forklift. Be aware of what action you **MUST** take if the machine starts to tip or roll over.

DO NOT ATTEMPT TO JUMP OUT – STAY IN THE MACHINE
HOLD TIGHTLY ONTO THE STEERING WHEEL – BRACE YOUR FEET
AND LEAN AWAY FROM THE IMPACT



WHEN THE MACHINE HAS COME TO REST – EXIT VIA THE SAFEST ROUTE

4. OPERATING PROCEDURES

Operating the Machine

Adjusting the Seat

The operator's seat can be adjusted for your comfort. A correctly adjusted seat will reduce operator fatigue. Position the seat so that you can comfortably reach the machine controls. Make sure that you can depress the foot controls fully with your back against the seat back.

Fasten the seatbelt and close the side guard before operating the Hiab Moffett Truck-Mounted Forklift.



WARNING:

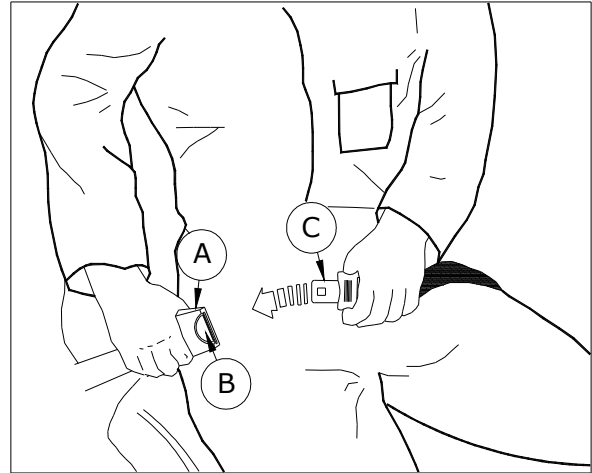
Safety. Always wear your seatbelt when driving the Hiab Moffett Truck-Mounted Forklift. The forklift may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat. The seat and seatbelt will help to keep you safely within the operator's compartment. In the event of a tip over, DO NOT JUMP, grip the steering wheel, brace your feet, lean away from the direction of tip-over and stay within the operator's compartment.



WARNING:

Seatbelt. If the seatbelt does not 'lock' when fastened do not drive the machine. The seatbelt assembly must be replaced immediately.

1. Sit correctly in the seat. Make sure the seatbelt is not twisted. Push the male end **C** into the buckle **A** until it latches.
2. Make sure the seatbelt is across your hips and not over your stomach.
3. Press button **B** to release the seatbelt.



Note: The forklift will not drive unless the seatbelt is connected across the operator's hips.

4. OPERATING PROCEDURES

Starting the Engine

Start Safely

Adjust the seat, fasten the seatbelt and close the side guard. Ensure all operating controls including the forward/reverse lever or pedal and hydraulic levers are in the neutral position before starting. Use the engine heater to preheat the engine. Use the engine heater to preheat the engine. Alert all people in the area before starting the machine. When starting your equipment in an enclosed space, make sure that there is adequate ventilation.

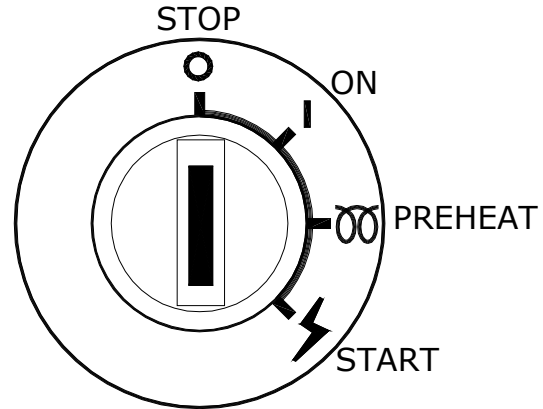


WARNING:

Engine Damage. Do not use starting fluid or spray as these are highly flammable, corrosive and cause engine damage.

Insert the key in the ignition. Turn the key clockwise to the preheat position and hold for approximately 6 seconds or until the preheat light goes out. Depress the accelerator pedal half way and turn the key until the starter engages and the engine starts. Do not engage the starter for any more than 10 seconds. Release the key and it automatically returns to the on position. If the engine fails to start, turn off the key for 30 seconds and repeat the starting procedure.

Note: If the engine is cranked excessively a thermal switch may cut in to prevent the starter motor from overheating. If this occurs, wait 30 seconds, push the reset button and retry starting the machine.



After starting, check that all red instrument panel warnings lights have gone out and that all gauges are functioning properly. If all red warning lights have not gone out or illuminate during operation, stop the engine immediately. Do not attempt to operate the Hiab Moffett Truck-Mounted Forklift with a warning light on as serious damage could occur to the engine.

4. OPERATING PROCEDURES

Battery Isolator Switch

Some Hiab Moffett Truck-Mounted Forklifts are fitted with a battery isolator switch. The battery isolator switch prevents the forklift battery from being drained when the machine is idle for long periods of time. This ensures there is always sufficient power in the battery to start the machine.

Ensure the battery isolator switch is set to the on position before attempting to start the Hiab Moffett Truck-Mounted Forklift, the engine will not start if the battery isolator switch is active. If your Hiab Moffett-Truck Mounted Forklift is to be left for a period of one week or more the battery isolator switch should be switched off.



WARNING:

Battery Isolator Switch. Do not activate the battery isolator switch when the engine is running as this could damage your engine.

4. OPERATING PROCEDURES

Driving Techniques

Note: Before driving the machine, read this manual thoroughly and carry out a pre-trip inspection.

Driving Forward

When driving a loaded machine forward always accelerate smoothly and slowly. If you accelerate quickly or with jerky movements the load could fall or the machine may become unstable. Keep the mast retracted and the load as low as possible. Always drive the machine slowly to avoid the risk of having to brake sharply. Always make sure your route is clear of obstructions and take care to avoid endangering pedestrians.

Reversing

When reversing, turn your head to face the direction of travel or get the assistance of a reliable person to guide you. Always make sure your route is clear of obstructions and take care to avoid endangering pedestrians. Always ensure the reverse beeper is functioning correctly and can be heard clearly by people around the machine.

Turning

The machine may become unstable if you turn too quickly or too sharply. Always turn slowly and smoothly. If you turn too quickly or too sharply the load could fall off or the machine could become unstable. Keep the load as low as possible.

The Hiab Moffett Truck-Mounted Forklift steers from the rear and can turn on a very tight radius. Tail swing and fork swing must be considered when turning. Always turn slowly and check for clearances at the fork tips and both rear corners of the forklift. When the machine turns, it rotates around either the right front or the left front wheel depending on the direction of the turn. Therefore, the operator must be aware of the unequal turning arcs relative to the offset seating position. When traveling empty with the mast extended, fork swing is greatly increased.

4. OPERATING PROCEDURES

Driving Techniques (continued)

Parking

Always park the Hiab Moffett-Truck Mounted Forklift in a designated safe area. Apply the park brake. Lower the forks fully to the ground. Neutralize all controls. Switch off the ignition and remove the key. Chock the wheels if the vehicle is on uneven ground.

If parking on an incline, point the machine uphill, chock the front wheels and turn the rear wheel across the incline.

Note: For machines equipped with a brake on the rear hub, it is recommended that the stabilizers be lowered when parking the machine on an incline.

Operating On Inclines

The Hiab Moffett Truck-Mounted Forklift is intended for use on firm, flat and stable surfaces. AVOID slopes and uneven or unstable surfaces where possible. However, when a job site conditions involve slopes, inclines or rough terrain, you must take additional care when operating the machine.



DANGER:

Inclines. Never travel across inclines. Traveling across an incline with or without a load greatly increases the possibility of a tip over.

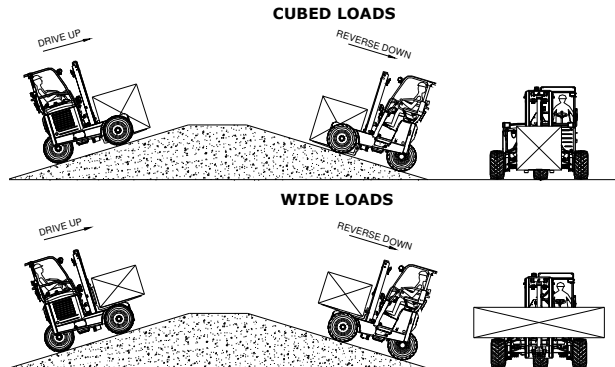
- Do not travel across an incline.
- ALWAYS APPROACH AN INCLINE STRAIGHT ON AND TRAVEL UP AND DOWN THE INCLINE.
- Keep the forks pointed uphill.
- Always travel in reverse when descending an incline.
- Do not turn on an incline.
- Never stop or start suddenly.
- Operate all controls smoothly.
- Watch out for potholes or other obstacles that could affect the stability of the machine.
- Drive slowly over rough terrain.
- Where necessary, engage the diff-lock and travel slowly for additional traction.
- Do not attempt to reverse down an incline that you think you would have difficulty driving up.

4. OPERATING PROCEDURES

Driving Techniques (continued)

Operating With a Load

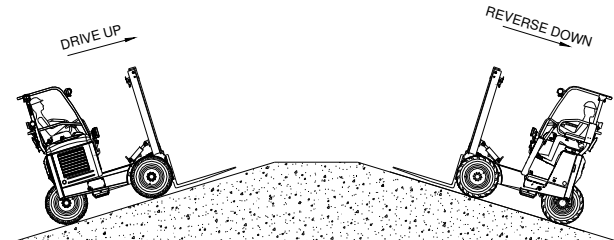
- Travel with the load and forks facing uphill.
- Never travel across a slope.
- Make allowances for a reduction in both stability and lift capacity when operating on inclines.
- Always travel with a cubed load within the frame.
- Always take great care when transporting wide loads on any incline. Carry the load as low as possible above the frame of the machine.
- Keep the mast fully retracted.



Operating Without a Load

- Extend the mast fully and point the forks uphill on an incline.
- Keep the forks as low as possible.
- Remember that your safety is most important and should not be compromised. You are the operator and you are in control of your safety. Do not take any chances!

Always wear your seatbelt when driving the Hiab Moffett Truck-Mounted forklift. The machine may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat to protect you from the risk of serious injury or death.



4. OPERATING PROCEDURES

Driving Techniques (continued)



WARNING:

Safety. Always wear your seatbelt when driving the Hiab Moffett Truck-Mounted Forklift. The forklift may tip over if operated incorrectly. In the event of a tip over, it is best to be held securely in the seat. The seat and seatbelt will help to keep you safely within the operator's compartment. In the event of a tip over, DO NOT JUMP, grip the steering wheel, brace your feet, lean away from the direction of tip-over and stay within the operator's compartment.

4. OPERATING PROCEDURES

Slow Moving Vehicles

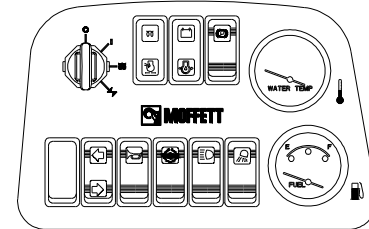
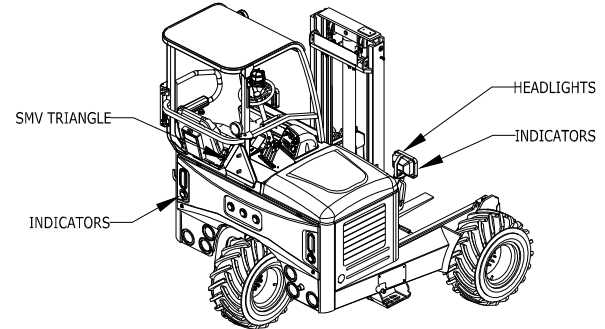
The machine is fitted with a slow moving vehicles triangle as shown, which is folded over so that it cannot be seen when truck mounted. Once the machine has been dismounted from the truck or trailer the slow moving vehicles triangle should be folded out and locked in place so that it is clearly visible to all other road users. Once the delivery is complete and the Hiab Moffett is again mounted on the rear of the truck/trailer the slow moving vehicles triangle must be folded away so as not to confuse other drivers.

Road Lights

When the Hiab Moffett is on the road with the slow moving vehicles triangle folded out it is classed as a separate vehicle and not part of the truck or trailer, for this reason it must have its own set of road lights and indicators.

The road lights must be used when working during the hours of darkness and the indicators should be used the same as when operating any other road going vehicle to inform other road users of your intention to turn a corner. The lights are activated by the switches on the dash panel as shown:

Front and rear work lights, stop light, instrument lights, and front and rear turn signals with hazard flasher. Lighting is in accordance with SAE J99.



-  LEFT INDICATOR
-  RIGHT INDICATOR
-  ROAD LIGHTS

4. OPERATING PROCEDURES

Diff-Lock

Operation of Diff-Lock

Under normal driving conditions the Hiab Moffett Truck-Mounted Forklift operates in all-wheel drive. However, in the event of one or more wheels losing grip the machine may lose traction, stop or skid. By engaging the diff-lock you will get equal positive drive to all three wheels.

To avoid damage to the hydraulic system:

- Do not engage the diff-lock when the machine is moving.
- Do not use the diff-lock where traction is good.
- Do not use the diff-lock when turning corners.

When to use Diff-Lock

- If one or more wheels lose traction while traveling through soft or slippery ground conditions.
- To maintain traction while traveling on slopes or inclines.
- To improve braking and traction when reversing downhill.



CAUTION:

Diff-Lock. Use the diff-lock only while traveling in a straight line.

How to Activate the Diff-Lock

1. Foot-Pedal Control

- a) Return the forward/reverse pedal to the neutral position to stop the machine.
- b) Check to see that the rear wheel is in the straight-ahead position.
- c) Engage the diff-lock switch.
- d) Increase the engine revs.
- e) Depress the forward/reverse pedal lightly in the required direction.
- f) Do not overload the engine.
- g) The diff-lock may be released while the machine is in motion.

2. Automotive Type Control

- a) Release the accelerator pedal to stop the machine.
- b) Check to see that the rear wheel is in the straight-ahead position.
- c) Engage the diff-lock switch.
- d) Select forward or reverse.
- e) Increase the engine RPM to move the machine.
- f) Drive the machine slowly while the diff-lock is engaged.
- g) The diff-lock may be released while the machine is in motion.

4. OPERATING PROCEDURES

Stopping Procedure

When stopping the machine follow the sequence below:

- Lower the forks to the ground. Tilt the fork carriage so the tips of the forks touch the ground.
- Neutralize all hand control levers and pedals.
- Engage the park brake.
- Switch off the ignition and remove the key.
- Release the seatbelt.
- Open the side guard.
- Dismount using the 3-point contact method.



WARNING:

Controls. If the forward/reverse pedal does not return to the neutral position, do NOT use the machine and contact your supervisor.



WARNING:

Procedure. Never leave the operator's seat without first:

- Facing the machine uphill and turning the rear wheel sideways if stopped on an incline.
- Engaging the park brake.
- Lowering the forks to the ground.
- Placing all controls in the neutral position.
- Stopping the engine.
- Removing the key.

4. OPERATING PROCEDURES

Loose Articles

Remove or secure all loose articles in the operator's compartment such as lunch boxes, tools etc.



WARNING:

Loose Articles. Do not leave loose articles in the operator's compartment. Loose articles can fall and strike you, or roll on the floor. You could be knocked unconscious, or the controls could get jammed. If that happens you could lose control of the machine.



CAUTION:

Safe Operation. If something comes loose, breaks or fails to operate:

- Stop.
- Apply the park brake.
- Shut down the engine.
- Get it repaired.

4. OPERATING PROCEDURES

Basic Load Techniques

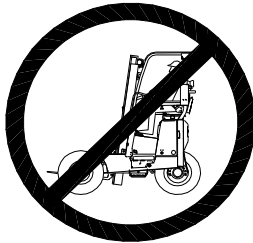
Traveling Without a Load

- Always extend the mast fully forward.
- Keep the forks as low as possible.
- Never travel with mast back and no load.



WARNING:

No Load. When traveling without a load the mast **MUST** always be fully extended.



Traveling With a Load

- Keep the mast fully retracted when traveling.
- Lower the stabilizers fully before extending the mast to place a load.
- When lifting a load, keep the stabilizers fully lowered until the mast is fully retracted.
- Keep the load as low as possible.

Using Stabilizers



WARNING:

Stabilizers. When placing a load, always place the load on a firm and level surface. The stabilizers must always be fully lowered before attempting to extend the mast. When lifting a load, the stabilizers must be fully lowered and raised only when the mast is fully retracted. When traveling without a load, the mast should be extended fully.



DANGER:

Stabilizers. Never raise the stabilizers when the mast carriage is extended with a load on.

Note: When the ground is not firm enough to support the stabilizers extra support plates must be used of sufficient size and strength to ensure they do not sink, bend or buckle during operation. A second person may be required to check the support plates. If at any time the stabilizers or pads show signs of sinking, the procedure must be stopped immediately, the mast fully retracted and an alternative location found. If in doubt prior to or during an operation on loose, uneven or soft surfaces, stop. Always consider safety first.

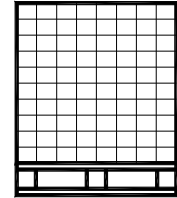
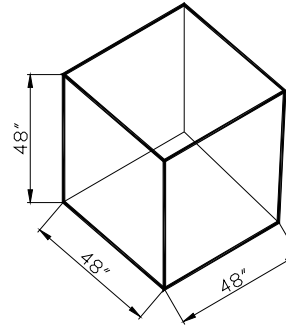
4. OPERATING PROCEDURES

Lifting and Placing Loads

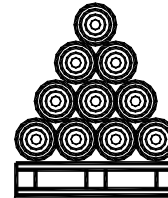
Cubed Loads

A cubed load is one that fits between the front wheels and the frame of the machine. To achieve maximum machine and load stability, the load should be carried with the mast retracted and as low as possible between the frame of the machine at all times. Common types of cubed load would be bricks, blocks, bagged goods or turf grass.

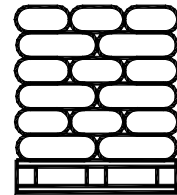
Note: Make sure the load to be lifted is stable and secure. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy, split the load and restack it.



BRICK/STONE



**TURF
GRASS**

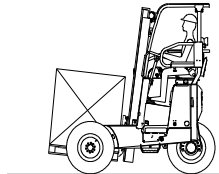
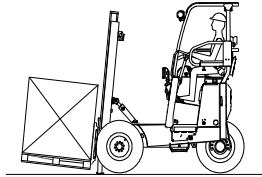
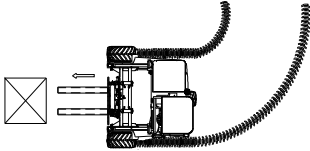


**BAGGED
GOODS**

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Lifting a Cubed Load from Ground Level

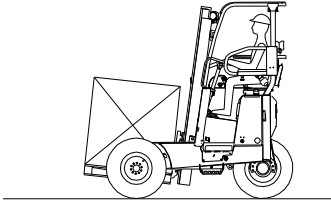


1. Align the forks to suit the load.
2. Approach the load squarely and drive slowly forward until the forks are fully engaged.
3. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath which is strong enough to support the stabilizers.
4. Lower the stabilizers fully.
5. Tilt the mast rearwards slightly to secure the load.
6. Raise the forks to lift the load.
7. Side-shift the mast to the center position if necessary.
8. Retract the mast fully.
9. Raise the stabilizers fully.
10. Slowly drive away looking in the direction of travel, keeping the load as low as possible.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Traveling With a Cubed Load

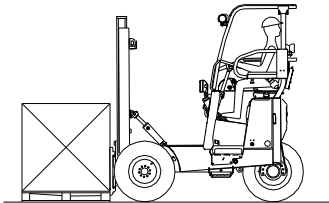
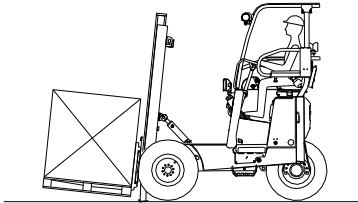


1. Carry the load as low as possible between the frame of the machine.
2. Keep the mast retracted fully.
3. Tilt the mast back.
4. Do not side-shift the load while traveling or turning.
5. Use caution when starting or stopping. Drive slowly and avoid sudden movements.
6. Always look in the direction of travel.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Placing a Cubed Load at Ground Level



1. Check the area and be certain that the load can be safely placed.
2. Approach the placement area squarely.
3. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath which is strong enough to support the stabilizers.
4. Lower the stabilizers fully.
5. Extend the mast fully.
6. Lower the forks to the ground.
7. Tilt the mast forward slightly to deposit the load.
8. Raise the stabilizers fully.
9. Back up carefully until the forks are clear of the load.
10. Slowly drive away looking in the direction of travel, keeping the mast extended fully.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Wide Loads

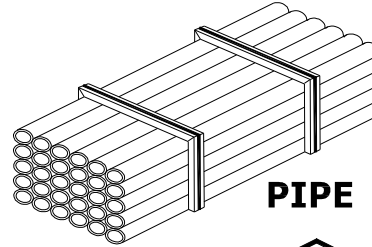
A wide load is a load that will not fit between front wheels and frame of the forklift. Common types of wide load are piping or lumber products.

Note: Make sure the load to be lifted is stable and secure. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy, split the load and restack it.

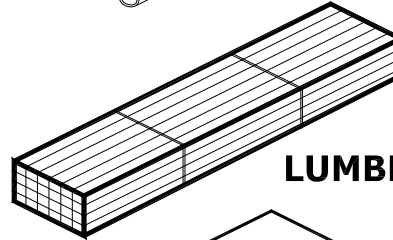


CAUTION:

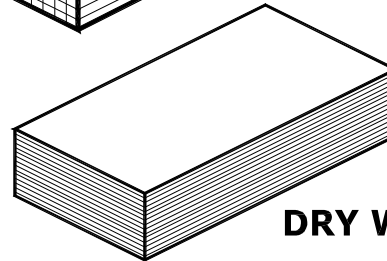
Wide Loads. When carrying wide or tall loads your visibility may be blocked by the load. It may be safer to travel in reverse when moving with such loads. You may require a signal person or “spotter” to guide you. If the road lights are blocked by the load, the work lights must be used to improve visibility and ensure you are seen by other road users.



PIPE



LUMBER

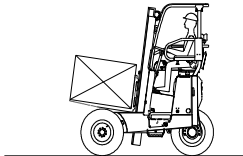
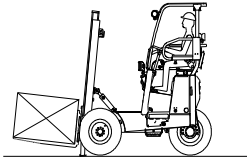
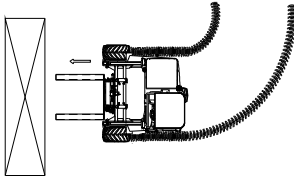


DRY WALL

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Lifting a Wide Load

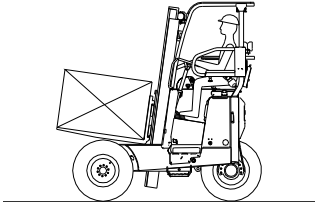


1. Align the forks to suit the load.
2. Approach the load squarely and drive slowly forward until the forks are fully engaged.
3. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath which is strong enough to support the stabilizers.
4. Lower the stabilizers fully.
5. Tilt the mast rearwards to secure the load.
6. Raise the load to clear the ground.
7. Raise the load to clear the frame and wheels of the forklift.
8. Side-shift the mast to the center position if necessary.
9. Retract the mast fully to bring the load above the front wheels.
10. Raise the stabilizers fully.
11. Slowly drive away looking in the direction of travel, keeping the load as low as possible.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Traveling With a Wide Load

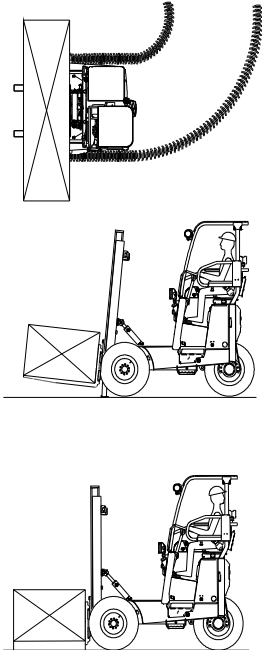


1. Carry the load as low as possible above the frame of the machine.
2. Keep the mast retracted fully.
3. Tilt the mast back.
4. Do not side-shift the load while traveling or turning.
5. Use caution when starting or stopping. Drive slowly and avoid sudden movements.
6. Always look in the direction of travel.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Placing a Wide Load



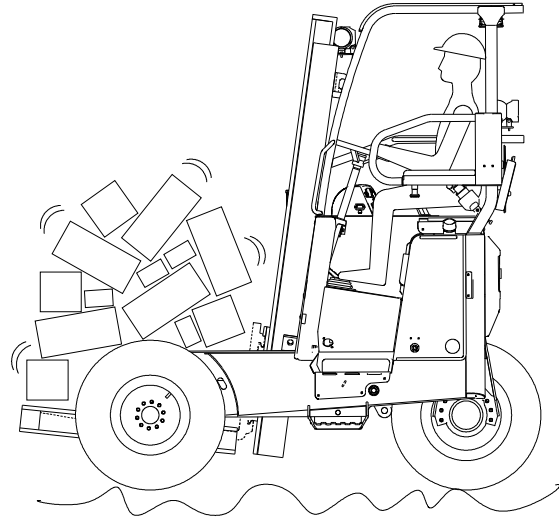
1. Check that the area is clear of debris.
2. Approach the placement area squarely.
3. Stop and side-shift the load if necessary to align it with the final resting position.
4. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath, strong enough to support them.
5. Lower the stabilizers fully.
6. Extend the mast fully to clear the frame and wheels of the machine.
7. Lower the forks to the ground.
8. Tilt the mast forward slightly to deposit the load.
9. Raise the stabilizers fully.
10. Back up carefully.
11. Slowly drive away looking in the direction of travel, keeping the mast extended fully.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Non Palletized or Loose Loads

- Use skids when necessary to allow insertion of the forks beneath the load.
- Do not allow the skids to interfere with the fork placement.
- Secure loose loads to prevent them from falling or shifting.
- Consult your supervisor before attempting to secure a loose load.
- Never attempt to handle a load which has been poorly wrapped or banded as it could injure you or others working around you.
- Follow the same procedure for handling cubed or wide loads when lifting or placing non-palletized or loose loads.



4. OPERATING PROCEDURES

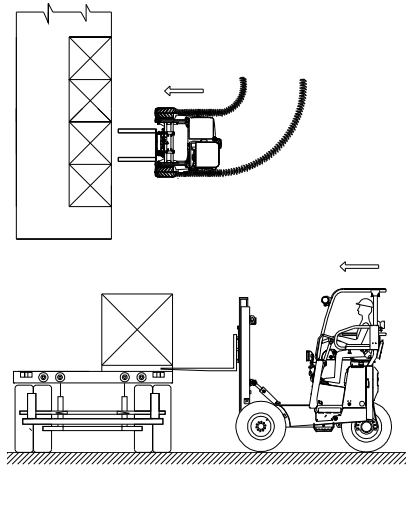
Lifting and Placing Loads (continued)

Loads above Ground Level

These techniques apply to:

- Stacking one load on top of another.
- Loading a truck or trailer.
- Unloading a truck or trailer.

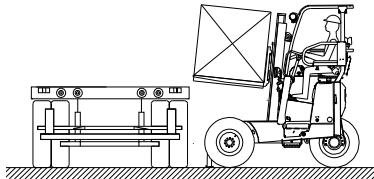
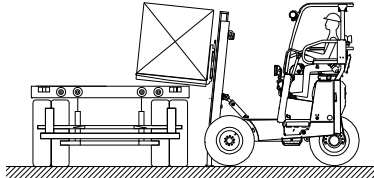
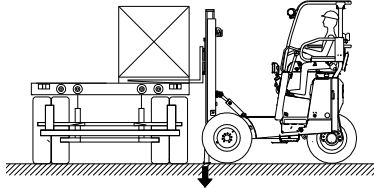
Picking Up a Load above Ground Level



1. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight of the load with your supervisor or have it weighed. If it is too heavy, split the load and restack it.
2. Adjust the fork height to suit the load.
3. Center the forks and approach the load squarely with the mast fully extended until the forks are fully engaged.
4. Do not touch the pick-up area with the mast.
5. Side-shift the mast to center the load on the forks.

4. OPERATING PROCEDURES

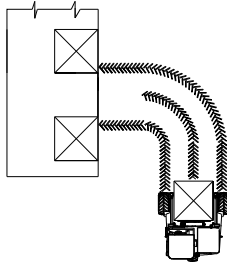
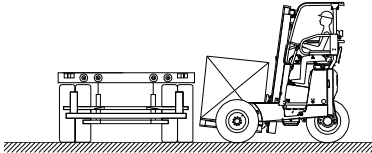
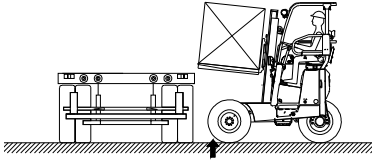
Lifting and Placing Loads (continued)



6. Check that the surface is strong enough to support the stabilizers. If not, place a metal or wooden support underneath, strong enough to support them.
7. Lower the stabilizers fully.
8. If it is not possible to engage the forks fully, follow the procedure outlined in the section titled Double Forking until the forks are fully engaged.
9. Raise the forks to lift the load clear of the pick-up area.
10. Tilt the mast rearwards to make the load more stable.
11. If necessary, raise the load to clear the frame of the machine.
12. Retract the mast fully.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)



13. Raise the stabilizers fully.
14. Check behind and back up slightly to clear the pick-up area.
15. Never maneuver or turn with a raised load.

16. Lower the load as close to the ground as possible.

17. Back up carefully.
18. Slowly drive away, looking in the direction of travel.

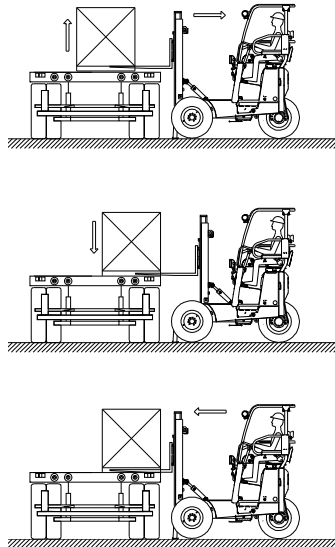
4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

Double Forking

If it is not possible to engage the forks fully when lifting the load from a truck or trailer, it will be necessary to move the load to the edge of the body of the vehicle before picking it up. This is known as double forking. Remember that the lift capacity of the machine is reduced if the forks are not fully engaged.

To Double Fork the Load

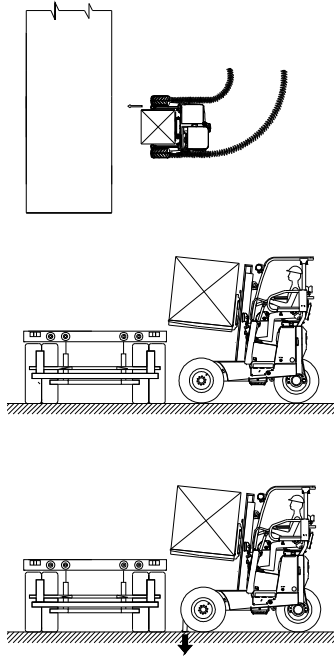


1. Raise the load slightly and retract the mast sufficiently to bring the load out to the edge of the vehicle body.
2. Lower the load back on to the vehicle body and fully engage the forks by moving the mast forward again.
3. The load is now ready to be lifted.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)

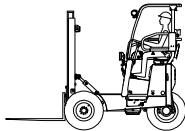
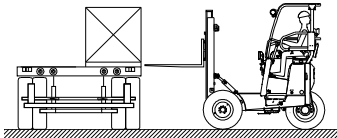
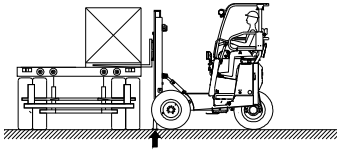
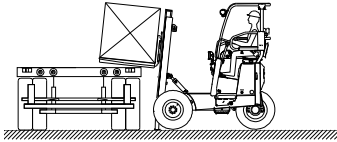
Placing or Stacking a Load above Ground Level



1. Approach the landing area squarely and with care.
2. Side-shift the load if necessary.
3. Raise the load above the level of the landing area or trailer.
4. Drive forward carefully and make certain that the front of the machine does not hit the landing area or trailer.
5. Check that the surface is strong enough to support the stabilizers.
6. Lower the stabilizers fully.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)



7. Extend the mast fully until the load is directly above the landing area or trailer.
8. Lower the load carefully.

9. Tilt the mast forward to position the load and place it on the resting area.
10. Raise the stabilizers slowly.

11. Back up cautiously to clear the load and landing area.
12. Lower the forks as low as possible to the ground.

13. Slowly drive away, looking in the direction of travel.

4. OPERATING PROCEDURES

Lifting and Placing Loads (continued)



WARNING:

Loading. Before attempting to load a truck or trailer, chock the wheels of the truck/trailer to prevent it moving. Always lower the stabilizers fully before attempting to pick-up a load from a truck or trailer.



WARNING:

Stabilizers. When lowering the stabilizers, make certain the ground is sufficiently firm to support the stabilizers. On loose or uneven soil, it may be necessary to place flat wooden or metal supports beneath the stabilizers.

Additional Precautions When Placing a Load above Ground Level

- Where visibility is restricted, use a signal person.
- Make certain that the landing area is of sufficient strength to carry the load.
- Check that the landing area is level and clear of debris.
- Never side-shift with a raised load. The stability of the Hiab Moffett Truck-Mounted Forklift will be compromised and the machine may tip over.
- Always move controls in a smooth, steady manner. Do not force a hydraulic cylinder to the end of its stroke as the resulting jolt could spill the load.
- Under no circumstances should a load be placed on or lifted from a scaffold platform.

5. MOUNTING PROCEDURES

Introduction

The Hiab Moffett Truck-Mounted Forklift is designed to be transported on the rear of a truck or trailer. The mounting procedure shown in this manual is for a conventional mounting kit. If your Hiab Moffett Truck-Mounted forklift is being mounted using a mounting kit other than the one shown here, please contact your Hiab Moffett Truck-Mounted Forklift dealer for the correct procedure to follow when mounting.



DANGER:

Transport. A Cargotec approved mounting kit must be fitted to your vehicle for transporting the Hiab Moffett Truck-Mounted Forklift. Contact your Hiab Moffett Truck-Mounted Forklift distributor for further details of approved mounting kits.

During transport the front wheels of the Hiab Moffett Truck-Mounted Forklift rest on the wheel rests of the mounting kit. The actual weight of the machine is supported by the wheel rests and the steel transport chains. The stop lights and directional signal lights of the truck or trailer are connected to the Hiab Moffett Truck-Mounted Forklift by means of an electrical cable (wiring pigtail).

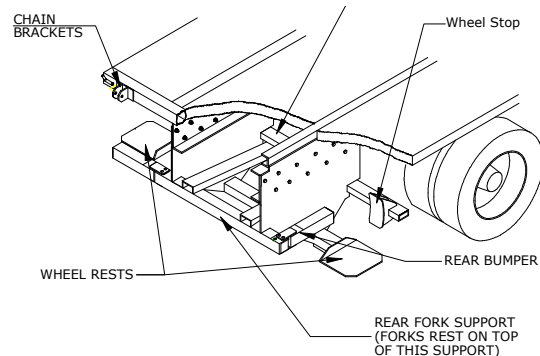


WARNING:

Transport. Do not attempt to transport the Hiab Moffett Truck-Mounted Forklift unless you have read the mounting section of the manual very carefully!

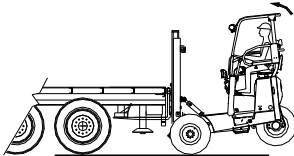
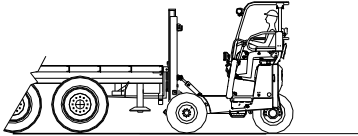
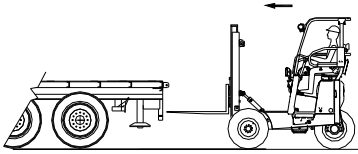
Most Hiab Moffett mounting kits can be modified to accept different truck mounted forklifts from the Hiab Moffett range of machines. Contact your Hiab Moffett distributor for more details.

Note: When the Hiab Moffett Truck-Mounted Forklift is not on the mounting kit, the ICC bumper **MUST** be folded out and pinned at all times ensuring the lights are visible at all times.



5. MOUNTING PROCEDURES

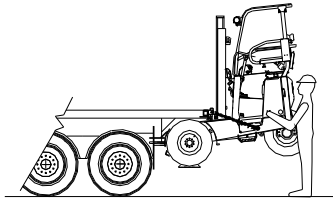
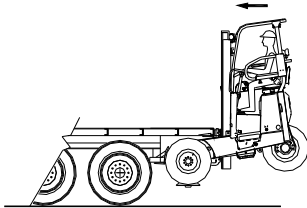
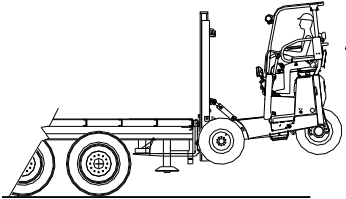
Mounting Procedure



1. On trailers, the folding ICC bumper should be folded in and pinned on both sides.
2. Approach the rear of the truck or trailer slowly and squarely. Extend the mast fully and center the side-shift.
3. Adjust the forks equally on the fork carriage to align them with the fork guides and ensure they are positively locked in place on the forkrail.
4. Raise the forks to align them for entry between the fork guides or below the fork bar.
5. Drive slowly forward until the forks are fully engaged between the front and rear fork supports in the mounting kit.
6. Tilt the mast fully rearward to raise the rear wheel.

5. MOUNTING PROCEDURES

Mounting Procedure (continued)



7. Lower the forks using the lift lever until the bottom of the front wheel of the forklift is slightly higher than the wheel rests of the mounting kit.

8. Retract the mast fully to move the forklift forward "into" the mounting kit until the front wheels contact the wheel stops.
9. Turn the steering wheel to ensure that the rear wheel is pointing straight ahead.
10. Turn the engine off.
11. Dismount using the three point contact method.
12. Attach both transport chains securely to the rear of the truck or trailer and put the lock pins in place.
13. Push and hold in the Lower N' Go button.

Note: if the machine is fitted with Groundstart press the bottom of the rocker switch to lower the machine.

14. Observe that the forklift settles on the mounting kit.
15. Connect the suzie cable and check that all lights are functioning properly.

5. MOUNTING PROCEDURES

Mounting Procedure (continued)



CAUTION:

Electrical Connector. It is important to ensure the electrical (suzie socket) connector is fitted correctly and that the lights on the rear of the Hiab Moffett Truck-Mounted Forklift are functioning properly.



CAUTION:

Hydraulic Pressure. It is important to release the hydraulic pressure so that the weight of the Hiab Moffett Truck-Mounted Forklift is carried by the mounting kit and transport chains and NOT by the mast. Otherwise damage will result from the forklift's weight resting on the mast.



CAUTION:

Rear Bumper. The rear bumper must be folded back out to full length and the locking pin and lynch pin fitted when the forklift is not being transported or removed for the purposes of loading or unloading.

Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage and make mounting difficult.

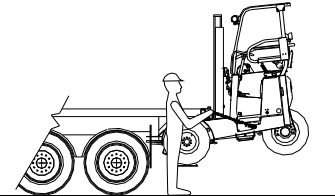
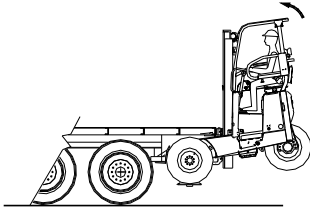
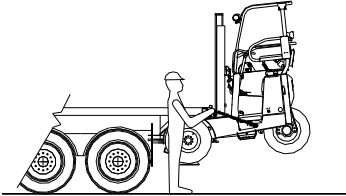
Note: Always remember:

- To lower the forklift you must raise the mast.
- To raise the forklift you must lower the mast.
- To tilt the forklift up you must tilt the mast back.
- To tilt the forklift down you must tilt the mast forward.

5. MOUNTING PROCEDURES

Dismounting Procedure

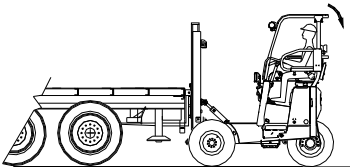
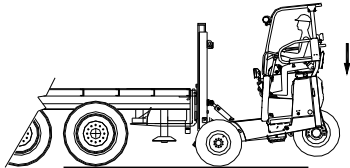
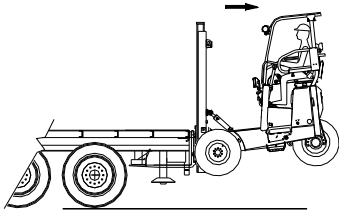
Standard



1. Disconnect the electrical cable and store in a safe place.
2. Climb aboard using the three point contact method.
3. Close the side guard fully.
4. Fasten your seatbelt
5. Start the forklift.
6. Raise the forklift off the wheel rests by lowering the forks until the wheels slightly clear the wheel rests.
7. Tilt the mast fully rearward. The weight of the forklift is now on the forks.
8. Turn off the engine.
9. Unfasten seatbelt and open side guard fully.
10. Dismount using the three point contact method.
11. Remove both slackened transport chains from the rear of the truck or trailer and place them in the hooks provided.
12. Replace the pins and locks in the chain brackets.

5. MOUNTING PROCEDURES

Dismounting Procedure (continued)



13. Open side guard fully and climb aboard the forklift using the 3-point contact method.
14. Close the side guard fully.
15. Fasten the seatbelt.
16. Start the engine.
17. Extend the mast slowly forward to move the forklift backward out of the mounting kit.
18. Raise the forks to lower the forklift to the ground.
19. Tilt the mast forward until the wheel touches the ground.
20. Raise the mast slightly to pressurize the mast lift cylinder and to clear the fork brace. (This may take several seconds.)
21. Ensure the rear wheel is pointing straight ahead.
22. Back up slowly until the forks are fully clear of the front and rear guides.
23. Lower the forks as low as possible, keep the mast extended fully and drive off, looking in the direction of travel.
24. On trailers, the folding ICC bumper should be extended and pinned on both sides.
25. Before load handling it may be necessary to adjust the forks to suit the load or pallet.

5. MOUNTING PROCEDURES

Dismounting Procedure (continued)

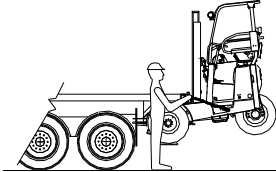
Note: Always ensure that all local and national laws are obeyed at all times. Make sure all operating and directional signal lights are functioning and visible. The rear bumper must be locked at full length when the forklift is not being transported.

Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage.

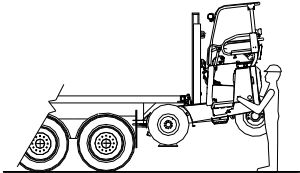
5. MOUNTING PROCEDURES

Dismounting Procedure (continued)

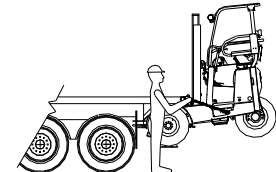
Groundstart



1. Disconnect the electrical cable and store in a safe place.



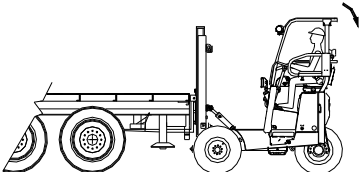
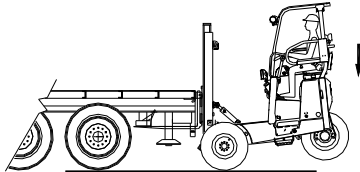
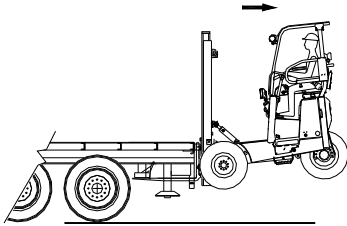
2. The red isolator button must be pressed in fully at the same time as the top of the switch to activate the lift function. Observe that the forklift rises on the mounting kit and the chains become slack.



3. Remove both slackened transport chains from the rear of the truck or trailer and place them in the hooks provided.
4. Replace the pins and locks in the chain brackets.

5. MOUNTING PROCEDURES

Dismounting Procedure (continued)



5. Open side guard fully and climb aboard the forklift using the 3-point contact method.
6. Close the side guard fully.
7. Fasten the seatbelt.
8. Start the engine.
9. Extend the mast slowly forward to move the forklift backward out of the mounting kit.
10. Raise the forks to lower the forklift to the ground.
11. Tilt the mast forward until the wheel touches the ground.
12. Raise the mast slightly to pressurize the mast lift cylinder and to clear the fork brace. (This may take several seconds.)
13. Ensure the rear wheel is pointing straight ahead.
14. Back up slowly until the forks are fully clear of the front and rear guides.
15. Lower the forks as low as possible, keep the mast extended fully and drive off, looking in the direction of travel.
16. On trailers, the folding ICC bumper should be extended and pinned on both sides.
17. Before load handling it may be necessary to adjust the forks to suit the load or pallet.

5. MOUNTING PROCEDURES

Dismounting Procedure (continued)

Note: Always ensure that all local and national laws are obeyed at all times. Make sure all operating and directional signal lights are functioning and visible. The rear bumper must be locked at full length when the forklift is not being transported.

Note: Always ensure the park brake is off when mounting or dismounting the machine. Always wear your seatbelt, failure to do so will cause the park brake to automatically engage.

5. MOUNTING PROCEDURES

Rules for Safe Transportation

If the forklift is to be driven on public roads, be certain that all laws and regulations are obeyed. Make sure all operating and directional signal lights are functioning and visible. Make sure that any slow moving vehicle sign is visible to any vehicles approaching from the rear if the law requires such a sign.

When traveling on public roads or streets, obey all local traffic movement regulations.

Approach intersections with caution, observe speed and traffic control signs. Do not speed. Avoid panic stops and sharp turns.

When transporting the forklift on a truck or trailer, know the overall height to avoid coming in contact with overhead obstructions such as bridges, power lines etc.



DANGER:

Transport. Do not attempt to transport the Hiab Moffett Truck-Mounted Forklift on a truck or trailer that is not equipped with a mounting kit designed and installed to Hiab Moffett Truck-Mounted Forklift specifications.

When carrying a Hiab Moffett Truck-Mounted Forklift, make certain that your vehicle complies with the relevant national and local laws and regulations regarding maximum vehicle weight, axle loading, overall vehicle length and overhang.

Note: Before mounting your machine on a truck or trailer ensure all relevant calculations have been carried out by an approved Hiab Moffett Truck-Mounted Forklift Distributor.

Ensure an approved Hiab Moffett mounting kit is fitted to the truck or trailer and that it is suitable to mount the particular Hiab Moffett Truck-Mounted Forklift. All Hiab Moffett mounting kits must only be fitted by approved personnel.

6. MAINTENANCE

Daily Maintenance

Before you begin your work-day, take time to check your machine and make certain that all its systems are in good operational condition.

- Check the engine oil level. Add oil if required (see section Engine Oil).
- Check the hydraulic oil level sight glass. The oil level must be between the red line (minimum) and the black line (maximum) when all hydraulic cylinders are in the closed position. Top up if necessary (see section Hydraulic Fluid).
- Check the fuel level and top up if necessary.
- Lift the engine cover and check the engine coolant level on the expansion bottle. Fill to the proper level if necessary. The proper coolant level is just below the radiator cap. Do not remove the radiator cap when the engine is hot. Escaping steam could cause severe burning (see section Engine Coolant).
- Check all hydraulic hoses and connections for wear or leaks.
- Check for broken, missing or damaged parts.
- Check the forks, mast and lift chains.
- Check the wheels for any damage or for missing or loose wheel nuts.
- Check the tires for cuts, bulges, tread depth and proper inflation pressure.

- Stroke all cylinders fully in and out and check for leaks. If the machine is parked up for a long period of time, ensure all cylinders are fully stroked on a regular basis.
- Check all lubrication and grease points as per the grease point charts. All grease points should be lubricated/greased at least once per week.
- If any parts are not ok contact your supervisor and do not use the forklift until it is properly repaired.

If operating in a dusty or sandy environment;

- Clean the engine air filter element and replace if necessary.
- Clean all dust etc. from between the radiator fins. Remove the filter mesh from the radiator and/or oil cooler where fitted and clean thoroughly. Where necessary, remove the radiator for proper cleaning.



CAUTION:

Temperature. Always turn off the engine and allow it to cool before checking:

- Engine coolant level
- Engine oil level
- Hydraulic oil level

6. MAINTENANCE

Daily Maintenance (continued)



WARNING:

Hydraulic Pressure. The hydraulic tank is pressurized and hydraulic oil may be hot. To avoid injury and spillage when removing the cap, stop the engine and remove the cap very slowly.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist

Visual Checks

The Hiab Moffett Truck-Mounted Forklift must be parked on a firm level surface in a SAFE ZONE with the keys removed and the park brake engaged. Starting at the operator's station, walk around the forklift and complete the following visual checks.

If defects are identified during the pre-shift visual inspection, notify your supervisor immediately.

1. **Decals** – Inspect all decals and the data plate. There should be no missing, damaged or faded decals on the forklift.
2. **Seat** – The seat must not be loose. The vinyl should not be torn. Inspect the seat to ensure the seat cushions and frame are secure. Inspect the seat to ensure the seat slides are functional, and check the latch mechanism for excessive play.
3. **Seatbelt** – The seatbelt should extend smoothly and retract fully. The seatbelt must not be frayed or worn. The latch must be fully functional.
4. **Side Guard/Latch/Hinges** – The side guard should not have any cracks or bends. It must open and close smoothly. It must positively latch when closed. Under no circumstances should the side guard be removed.
5. **Overhead Guard** – The overhead guard must not be distorted, cracked or modified by drilling or welding.
6. **Operator Manual/Manual Box** - The Hiab Moffett Operator Manual must be kept in the manual box at all times.
7. **Hydraulic Level Oil Sight Gauge** - Check the hydraulic fluid level with all cylinders in the CLOSED position. Ensure that the maximum amount of oil is in the hydraulic tank. If it is below the minimum, it must be topped off ONLY with the proper hydraulic fluid. If top-off is required, remove the hydraulic cap slowly and carefully as the hydraulic tank is pressurized. If the hydraulic fluid is discolored, the hydraulic oil system should be inspected.
8. **Fuel Level** – Check the fuel level and top off if necessary. Do not overfill tank. Ensure that the seal on the inside of the fuel cap is not damaged.
9. **Valve Levers** – The valve levers should be clean and clear of debris.
10. **Left Carriage Cylinder** - Check for leaks at the fittings and gland (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
11. **Left Tilt Cylinder** See #10 Left Carriage Cylinder.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

12. **Left Front Tire and Wheel** - Look for debris, mud, or binding behind and around the wheel. Ensure that there are no missing or loose wheel nuts. There should be no chunks, cuts, or excessive wear on the tire. Check the tire for proper inflation in accordance with the manufacturer's recommended tire pressure. Any tire with the body ply cords visible, or showing any signs of cuts, bulges or other signs of damage, should be replaced immediately. Look for bent or corroded rims.
13. **Side-Shift Cylinder** - See #10 Left Carriage Cylinder.
14. **Left Side-Shift Pin** - Check for missing or loose bolts on either end.
15. **Left Stabilizer** - Check for damage and bends. Ensure the wear pads are intact. Adjust with shims if necessary.
16. **Left Fork** - Inspect the lock pins to ensure that they are functional and making positive engagement in the fork board. Check the top and bottom fork carriage mountings on the fork for cracks and wear. Check the fork for bends, cracks and surface wear horizontally (along the blade), vertically (along the shank), and at the heel. Ensure both forks are in the same level plane.
17. **Mast** - Check that the mast is not bent or has any debris on it. Check the bolts on the base of the mast cylinder for tightness.
18. **Mast Chains** - Check all mast chains. All chains should be lubricated. There should be no seized links or rotated connecting pins over the entire length of the chains. When the chains are without tension, ensure that they have equal slack, and that the slack is not excessive.
19. **Load Backrest (if fitted)** - The load backrest should not be bent or loose.
20. **Mast Lift Cylinder and Mounts** - See #10 Left Carriage Cylinder.
21. **Hydraulic Hoses and Connections** - Observe any leaks or loose fittings. Look for oil spots on the ground where the forklift has been parked and on the frame of the forklift for the source of a leak.
22. **Right Fork** - See #16 Left Fork.
23. **Right Side-Shift Pin** - See #14 Left Side-Shift Pin.
24. **Right Stabilizer** - See #15 Left Stabilizer.
25. **Right Front Tire and Wheel** - See #12 Left Front Tire and Wheel.
26. **Right Tilt Cylinder** - See #10 Left Carriage Cylinder.
27. **Right Carriage Cylinder** - See #10 Left Carriage Cylinder.
28. **Hood** - The top hood should have no broken latches or hinges.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

- 29. **Engine Oil** – Remove the dipstick and clean with a cloth or paper. Reinsert it fully. Remove the dipstick again and observe the location of the oil mark. It should be between the minimum and maximum marks. If the oil mark is below the minimum level, it must be topped off. If the engine oil needs frequent topping off, the engine should be inspected for damage or leaks.
- 30. **Coolant** – The coolant should be no more than 4” below the neck of the radiator. Do not attempt to remove the radiator cap if the engine is hot.
- 31. **Rear Steering Cylinder** – See #10 left Carriage Cylinder.
- 32. **Rear Tire and Wheel** – See #12 Left Front Tire and Wheel.
- 33. **Rear Door** – The rear door should have no broken latches or hinges.
- 34. **Steering Wheel** – The steering wheel should be free of cracks or damage. The steering knob should have no excess wear.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT VISUAL INSPECTION, NOTIFY YOUR SUPERVISOR IMMEDIATELY.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

Operational Checks

Operational inspections are done by starting the engine, operating all controls, and test driving the Hiab Moffett Truck-Mounted Forklift. Never start the Hiab Moffett Truck-Mounted Forklift to perform the operational inspections if the visual inspection indicates an immediate safety hazard. Constantly monitor the gauges, listening for unusual noises, loose parts, fluid leaks and unusual conditions. If a problem is suspected, take the forklift out of service and have it inspected and repaired.

1. **Noises/Emissions** – Listen for unusual noises and observe engine emissions at all times when operating the Hiab Moffett Truck-Mounted Forklift. If you suspect an engine or hydraulic problem during start up immediately shut down the forklift and contact your supervisor.
2. **Side Guard** – The side guard should open and close smoothly and should positively latch when opened and closed. Check for cracks or excessive play in the side guard. Check the operation of the side guard ensuring that it latches in the closed position and that it is tight against the anti-vibration block in the open position. If required the anti vibration block can be adjusted to ensure a tight fit.
3. **Gauges and Indicators** – The engine oil light and the battery light should illuminate when the ignition is turned on. Both lights should extinguish when the engine is started. The preheat indicator (if equipped) should illuminate when preheating and go out after the engine is started. As the forklift is operated the temperature gauge should rise to the safe operating temperature. If the operating temperature reaches the upper end of the gauge, this indicates a problem and the forklift must be shut down. If the Hiab Moffett Truck-Mounted Forklift is difficult to start, have your supervisor arrange for an inspection of the glow plugs and starting system. If the lights do not go out after start up, or illuminate during the operation of the Hiab Moffett Truck Mounted Forklift, immediately shut down the forklift and report the situation to your supervisor. The air filter indicator should not be illuminated.
4. **Hour Meter** – The hour meter should count as the forklift is operated.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

5. **Pedals** – There are two pedals that need to be inspected – the accelerator pedal and the forward/reverse or inching/brake pedal.
 - **Accelerator Pedal** – Depress the accelerator pedal slowly and then return it to neutral. The engine should run smoothly. It should accelerate and decelerate to idle.
 - **(Standard Drive) Forward/Reverse Pedal** – At a low RPM, drive the forklift forward and backward, gradually depressing the forward/reverse pedal fully in each direction. The forklift should respond accordingly. Release the forward/reverse pedal. The pedal should return to neutral and the forklift should come to an immediate stop.
 - **(Anti-stall Drive) Forward/Reverse Pedal** – Fully depress the directional control pedal forward, and accelerate gently to test forward drive. Then fully depress the direction control pedal rearward and accelerate gently to test rearward drive. When you release the forward/reverse pedal, it should return to neutral and the forklift should come to an immediate stop.
 - **(Automotive) Forward/Reverse Lever and Inching/Brake Pedal** – Move the forward/reverse lever to the forward position and depress the accelerator pedal slowly. The forklift should respond accordingly. Depress the inching/brake pedal slowly to gradually bring the machine to a halt. Move the forward/reverse lever to the backwards position and depress the accelerator pedal slowly. The forklift should respond accordingly. Depress the inching/brake pedal slowly to gradually bring the machine to a halt.
6. **Seatbelt** – With the parking brake in the OFF position and the seatbelt unfastened the Hiab Moffett Truck-Mounted Forklift should not be able to drive in either the forward or reverse direction. With the parking brake in the OFF position and the seatbelt fastened ensure the machine will drive in both the forward and rearward direction.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

7. **Valve Levers** - Cycle all controls fully and ensure that there is no free play in the valve levers. Look for jerking movement and listen for unusual noises. Never extend your head, arms or body into the mast or mast carriage. All levers should return to the center position (neutral) when released. Test the following levers with the forks low to the ground.
 - **Mast** - Ensure that the mast raises and lowers fully and smoothly. Lateral movement is an indication that the wear pads need adjusting or that there may be a broken roller.
 - **Carriage** - Ensure that the mast carriage moves forward and backward fully and smoothly. There should be no lateral movement. Lateral movement is an indication that the wear pads need adjusting or there may be a broken roller.
 - **Tilt** - Tilt the mast fully forward and rearward. There should be no binding or jerking.
 - **Side-Shift** - Side-shift the mast fully left and fully right. There should be no binding or jerking.
 - **Stabilizers** - Ensure the stabilizers lower and raise fully.
8. **Park Brake** - Switch on the parking brake and attempt to drive forward and reverse. If the parking brake is functioning properly the Hiab Moffett Truck-Mounted Forklift should not move.
9. **Steering Response** - Drive the forklift making a complete left turn and a complete right turn. The steering should be responsive. There should be no excessive free play, jerking, binding, or unusual noises.
10. **Diff-Lock** - Engage the diff-lock and attempt to drive forward and reverse. There should be a noticeable drag on the engine to indicate that the diff-lock is functioning.
11. **Back-up Alarm** - The back-up alarm must be operational. The back-up alarm should NEVER be disconnected.
12. **Horn** - The horn should be operational. Do not operate the forklift if the horn does not work.
13. **Work Lights** - All the work lights should be operational.
14. **Road Lights** - All the road lights, flashers and turn signals should be operational.
15. **Strobe** - The strobe should be operational when the ignition is switched to the ON position.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT OPERATIONAL CHECK, TAKE THE FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.
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6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

Transport Checks

Transport inspections are done by inspecting the mounting kit and then mounting the Hiab Moffett Truck-Mounted Forklift onto a truck or trailer before making deliveries. Never attempt to mount the forklift to perform the transport inspections if the visual or operational inspections indicate an immediate safety hazard. If a problem is suspected with the mounting kit or forklift, take either the mounting kit or forklift out of service and have it inspected and repaired.

1. **Mounting Kit** – Check the mounting kit and chain hanger brackets for cracks and bends.
2. **Tie Downs (Dump bed mounting kit only)** – The tie downs should be positively locked in place.
3. **Pins and Locks** – Ensure that the transport pins on either side are not worn and that both flip locks are working.
4. **Transport Chains** – Check for damaged or dislodged pins on the end shackles at either end of both chains. The bolts and lock nuts that retain the transport chains on either side of the Hiab Moffett Truck-Mounted Forklift should be in place. Mount the forklift on the rear of the truck or trailer. If any unusual noises, jerking, or binding are noticed, immediately lower the forklift to the ground and have it inspected by a forklift technician.
5. **Angle of Forklift to Ground and Ground Clearance (when mounted)** – The rear wheel should be 3° higher than the front wheels when mounted except when mounted in a top mount kit.
6. **Rear Lights (when mounted)** – All rear lights should be working:
 - Side marker (left and right) - 2
 - Corner marker (left and right) - 2
 - Row center - 3
 - Rear marker/brake - 2
 - Rear marker/turn - 2
 - Reverse - 2
7. **Conspicuity Tape (when mounted)** – The conspicuity tape should be clean and intact. Ensure the conspicuity tape obeys all local and national legislation for the vehicle.
8. **Lower N' Go (if fitted)** – On machines equipped with Lower N' Go it will be necessary to first raise the machine off the kit manually using the hydraulic levers before testing Lower N' Go. Press and hold the Lower N' Go button until the machine rests back into the mounting kit and both chains become tight.

6. MAINTENANCE

Daily Pre-Shift Inspection Checklist (continued)

9. **Groundstart (if fitted)** – With the stabilizing chains connected, activate the groundstart to raise the machine off the mounting kit until the stabilizing chains become slack. Press and hold the Lower N' Go button until the machine rests back into the mounting kit and both chains become tight.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT TRANSPORT CHECK, TAKE THE KIT OR FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

6. MAINTENANCE

Interlocking Seatbelt

Inspect the seatbelt regularly to check for damage and to make sure it functions properly mechanically and electrically.



WARNING:

Seatbelt. Failure to properly inspect and maintain the seatbelt can lead to a seatbelt failure in the event of an accident.

Any time the Hiab Moffett Truck-Mounted Forklift is being operated and is involved in an accident, the whole seatbelt assembly must be replaced. This is to ensure that if any unseen damage has occurred it is replaced.

If the seatbelt is worn or damaged it must be replaced.

The seatbelt must be inspected in detail at least once a year and more often if exposed to harsh conditions.

If replacement of any part of the seatbelt is required then the entire assembly must be replaced (retractor and buckle) with Cargotec recommended items from a service provider.

Inspection

The following guidelines detail how to inspect the seatbelt fitted to a Hiab Moffett Truck-Mounted Forklift:

- 1. Webbing** - To check the webbing, pull the seatbelt completely out of the retractor and inspect the full length for deterioration. The seatbelt must be replaced if it has any signs of nicks, cuts or holes, is frayed or fluffed at the edges, shows excessive fading due to UV exposure, if the webbing is packed with dirt or if the stitching is frayed, insecure, incomplete or repaired.
- 2. Buckle Operation** - Check the buckle for damage and check the latch for correct operation. Determine if the latch plate is excessively worn or deformed. Establish if the buckle is damaged or the casing is broken. Check the security and operation of the seatbelt by connecting the buckle and tongue, and then trying to pull them apart. While pulling the buckle and tongue, press the release button to ensure correct release. Make sure the button does not stick after release.
- 3. Retractor** - Fully extend the webbing to determine if the retractor spools in and out correctly. All webbing must retract back fully into the retractor. When the webbing is quickly pulled from the retractor the belt should lock automatically.

6. MAINTENANCE

Interlocking Seatbelt (continued)

4. **Connection to Forklift** - The seatbelt anchorage points should be checked to ensure all bolts are tight. Check the mounting plates are OK and in the case of the flexible cable type seatbelt, ensure that the cable is not broken or frayed.
5. **Electrical Connection** - The seatbelt is fitted with an electrical connection and wired to the machine. Check that the wire is not cut, pinched or damaged in any way and ensure when the seatbelt is disconnected that the machine will not drive.

If the inspection finds any damage, wear, or malfunction of the seatbelt, the complete unit must be replaced with Cargotec recommended equipment. The seatbelt fitted has been designed and tested specifically for the Hiab Moffett Truck-Mounted Forklift. Care must be taken when replacing parts to ensure that they are fitted correctly to maintain the integrity and function of the seatbelt system.

Note: The seatbelt must only be cleaned with warm soapy water; do not use chemical cleaners, bleach or dies. Contamination with fuel, grease or acid will damage the seatbelt. Do not make any modifications or additions to the seatbelt.

6. MAINTENANCE

Service

In order to carry out a service/inspection of your Hiab Moffett Truck-Mounted Forklift it is important that the vehicle is first thoroughly cleaned. While doing so, please note the following points:

- Ensure that the engine is shut down prior to washing.
- Do not wash directly onto any bearings.
- Do not wash directly onto the mast chains, the mast chains must be cleaned using a kerosene-based cleaning agent and a brush. It is very important to remove all traces of the cleaning agent using an airline to blow dry the chains.
- Lubricate the chains immediately after cleaning.
- Take care when washing close to electrical connections.



WARNING:

Compressed Air. When using compressed air ensure that relevant personal protection equipment/safety equipment is used at all times. Adhere to all company/manufacturer safety information and guidelines.

Note: In regions that have extreme temperature changes, it may be necessary to change the hydraulic oil and engine oil to meet the ambient operating temperature as outlined in the fluid specification chart. Also in accordance with the operator manual, the air filter must be cleaned/changed more frequently if operated in dusty or sandy environment.



CAUTION:

Maintenance. The maintenance section of this manual outlines the recommended preventative maintenance schedule. Always adhere to the recommended operating and maintenance procedures. Only trained, authorized and experienced personnel should be allowed to operate the Hiab Moffett Truck-Mounted Forklift. Service personnel should read and study this manual, the service manual, the preventative maintenance manual and parts manual in order to gain a thorough understanding of the unit prior to making any repairs. Exercise all necessary safety precautions when performing maintenance covered in the preventative maintenance manual. Ensure that the engine is switched off, the battery is disconnected and the engine and exhaust are cool.

6. MAINTENANCE

Service (continued)

In order to attain full benefit and service from your Hiab Moffett Truck-Mounted Forklift, it is important that the following service information / service guidelines are fully adhered to at all times. Cargotec Ireland recommends servicing take place at the following intervals:

1. First Service at 50 hours.
2. Next Service at 200 hours and every 200 hours thereafter.
3. Additional items required at 1000 hours.

All service preventative maintenance should be carried out in accordance with the tasks listed on the Hiab Moffett Maintenance Check Sheet. Cargotec Ireland recommends that the Hiab Moffett Truck-Mounted Forklift is inspected at least quarterly in each year.

To help with this Cargotec have created A and B preventive maintenance programs:

An "A" preventive maintenance includes an engine oil change, engine oil filter, fuel filters and inspection/cleaning of the air filter.

The annual "B" preventive maintenance includes a complete filter change (air, engine oil, fuel filters and hydraulic filters) along with changing the engine oil, hydraulic oil and cleaning the in-tank filters.

Period	PM Type	Contents of PM
50 Hours	A	Grease, Engine Oil, Engine Oil Filter, Fuel Filters, Check Air Filter and Clean
200 Hours	A	Grease, Engine Oil, Engine Oil Filter, Fuel Filters, Check Air Filter and Clean
400 Hours	A	Grease, Engine Oil, Engine Oil Filter, Fuel Filters, Check Air Filter and Clean
1000 Hours	B	Grease, Engine Oil, Engine Oil Filter, Hydraulic Filters, Fuel Filters, Air Filter, Hydraulic Oil, Clean In-Tank Filters

6. MAINTENANCE

Hiab Moffett Maintenance Check Sheet

Table 1

Codes	
..	O.K
R	Repair
A	Adjust
S	Safety
*	Adjustments not included in PM

Table 2

1.	VISUAL INSPECTION	
A.	Driver Consultation/ Debrief	
B.	Oil / Fluid Leaks	
C.	Overhead Guard	
D.	Forks / Fork Pins / Carriage	
E.	Load Backrest	
F.	Mast Assembly	
	- Lift Chain and Rollers	
G.	Tire and Wheel Condition	
	- Right Front	
	- Left Front	
	- Rear	
H.	Seat / Seatbelt (Conduct a Detailed Inspection of the Seat Assembly to Ensure Seat Stability)	
I.	Engine Guards In Place	
J.	Steering Wheel Condition	
K.	Accelerator / Directional Pedals	
L.	Covers / Locks / Hinges	
M.	Safety Decals and Data Plates In Place	

6. MAINTENANCE

Hiab Moffett Maintenance Check Sheet (continued)

N.	Operator Manual	
O.	Side Guard	
2.	LUBRICATE AND CLEAN	
A.	Blow Off Truck	
B.	Blow Out Radiator	
C.	Lubricate All Grease Fittings	
D.	Lubricate Lift Chains	
E.	Lubricate Side Guard Hinges	
F.	Lubricate Cables (Throttle and Forward/Reverse)	
H.	Do Not Grease Mast Channels	
3.	ELECTRICAL	
A.	Wiring and Connector Conditions	
B.	Fuse Panel Condition	
C.	Alternator Output	
D.	Glow Plug Operation	
E.	Starter/Solenoid Operation and Condition	
F.	Battery and Terminal Condition	
G.	Battery Water Level	
H.	Battery Hold Down	
4.	STEERING SYSTEM	
A.	Hoses and Fittings	
B.	Leaks	
C.	Steering Linkage	

6. MAINTENANCE

Hiab Moffett Maintenance Check Sheet (continued)

D.	Steer Bearing Adjustment*	
E.	Steer Motor Mounting Secure	
F.	Cylinder Condition and Leaks	
5.	WHEEL MOTORS	
A.	Hoses and Fittings	
B.	Leaks	
C.	Mounting Secure	
D.	Wheel Studs and Lug Nuts Secure	
E.	Axle Assembly Free From Debris	
6.	MAST ASSEMBLY	
A.	Mounting Bolts and Pins Secure	
B.	Cylinder Leaks and Mounting Condition	
	- Mast Cylinder	
	- Tilt Cylinders	
	- Carriage Cylinders	
	- Side-Shift Cylinder	
	- Stabilizer Cylinders	
C.	Mast Cylinder Hose Condition	
D.	Mast Bearings Condition and Tightness	
E.	Carriage Bearings Condition and Tightness	
F.	Mast Alignment/Wear Pad Adjustment*	
G.	Carriage Alignment /Wear Pad Adjustment*	
H.	Mast Chain Rollers	
I.	Mast Chain Condition – Wear	

6. MAINTENANCE

Hiab Moffett Maintenance Check Sheet (continued)

J.	Mast Chain Adjustment *	
K.	Mast Chain Mounting Pins and Anchors	
8.	GENERAL	
A.	Park Brake Operation	
B.	Steering Response	
C.	Load Test	
D.	Mount/Dismount From Mounting Kit	
E.	Engine RPM	
F.	Side Guard Operation	
G.	Driver Debrief	
H.	Replace Hydraulic Oil (Once a year)	
I.	Clean In - Tank Filters (Once a year)	
7.	ENGINE	
A.	Hoses and Fittings	
B.	Leaks	
C.	Mounting Secure	
D.	Electrical Connections	
E.	Radiator Mounts and Hoses	
F.	Belt Condition and Adjustments *	
G.	Coolant Level and Condition	
H.	Replace Air Filter	
I.	Replace Fuel Filter	
J.	Replace Engine Oil and Filter	
K.	Muffler Mount and Condition	

6. MAINTENANCE

Hiab Moffett Maintenance Check Sheet (continued)

8.	TRANSPORT	
A.	Chains and Hammer Locks	
B.	Chain Anchor Points	
C.	Pins and Locks	
D.	Lights	
E.	Reflective Tape	
F.	Mounting Kit	
G.	Transport Angle	
H.	Tie Downs (Dump Bed)	
9.	OPERATION AND TEST DRIVE	
A.	Horn	
B.	Travel Alarm	
C.	Strobe and Work Lights	
D.	Pedals and Cables Operation	
E.	Return To Neutral	
F.	Gauges/Hour Meter/Warning Lights	
G.	Differential Lock (Forward and Reverse)	
H.	Control Valve Levers	
10.	HYDRAULIC SYSTEM	
A.	Oil Level and Condition	
B.	Hoses and Fittings	
C.	Leaks	
D.	Pump Mounting	
E.	Pump Leaks	

6. MAINTENANCE

Hiab Moffett Maintenance Check Sheet (continued)

F.	Replace Hydraulic Suction Filter	
G.	Replace Hydraulic Return Filter	
11.	WIPE OFF TRUCK AND CLEAN AREA	

6. MAINTENANCE

Grease Point Chart

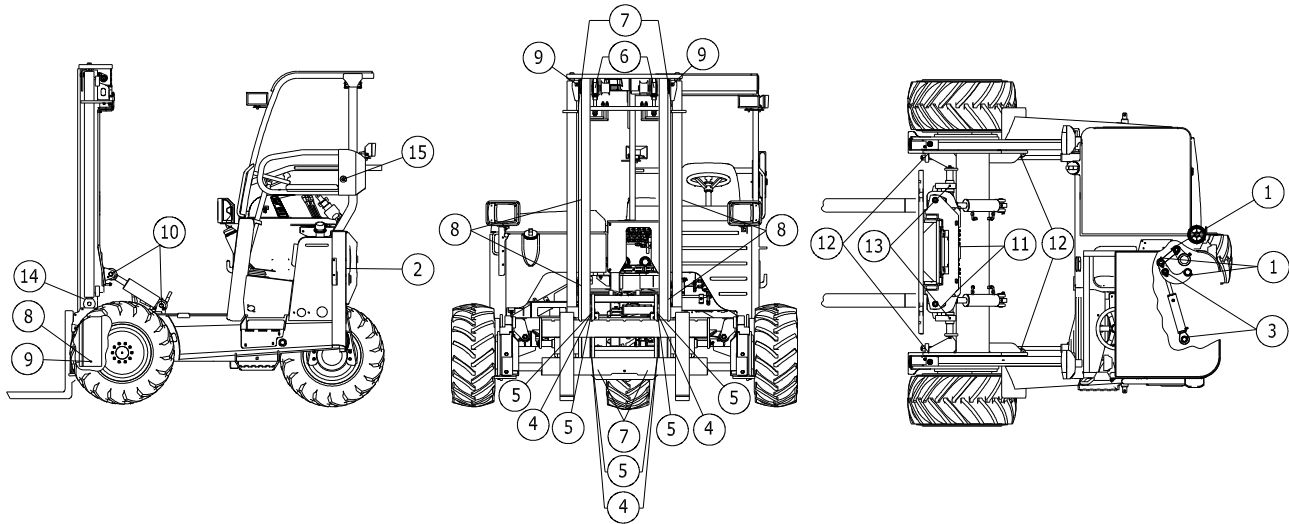
M40 and M50 Lite Range

Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Steering Linkage	3	118
2	Spindle Housing	1	118
3	Steering Cylinder	2	118
4	FEM 2 Fork Carriage	4	119
5	FEM 3 Fork Carriage	6	120
6	Top Chain Rollers	2	121
7	Bottom Chain Rollers	2	121
8	2T Mast Section	2	122
9	2.5T Mast Section	2	123
10	Tilt Cylinder	4	124
11	Side-Shift Cylinder	2	125
12	Mast Carriage	4	126
13	Side-Shift Bushing	2	127
14	Lift Cylinder	2	128
15	Rotating Side Guard	1	129

6. MAINTENANCE

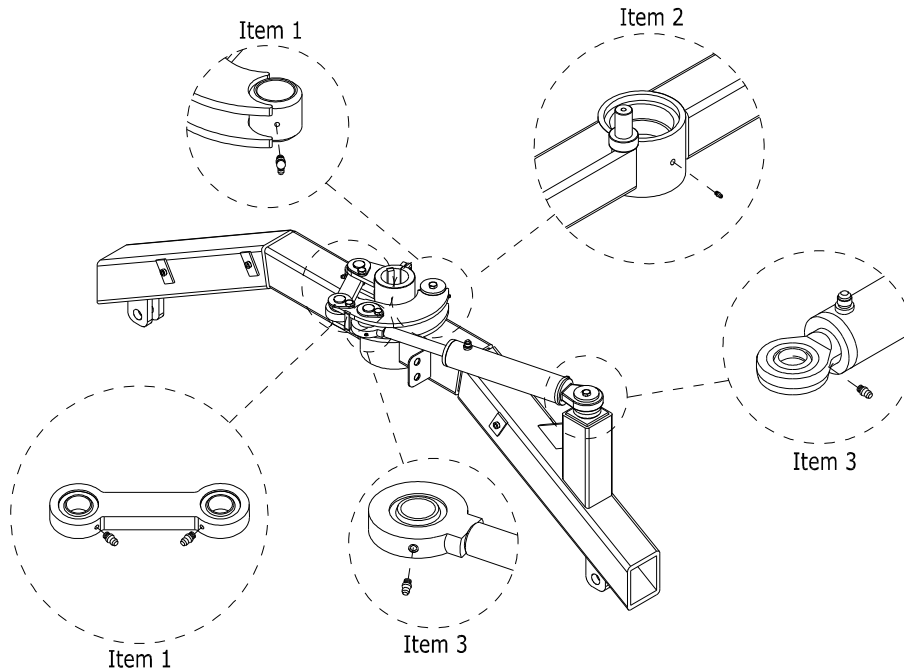
Grease Point Chart (continued)



6. MAINTENANCE

Grease Point Chart (continued)

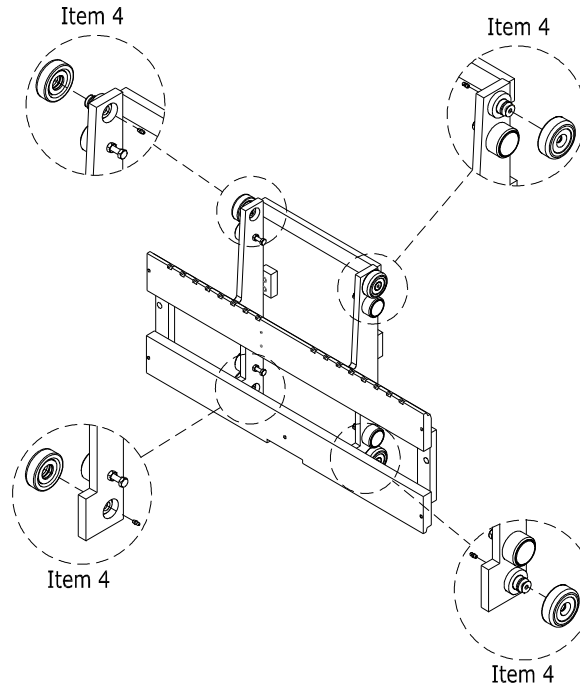
Steering Linkage, Spindle Housing and Steering Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

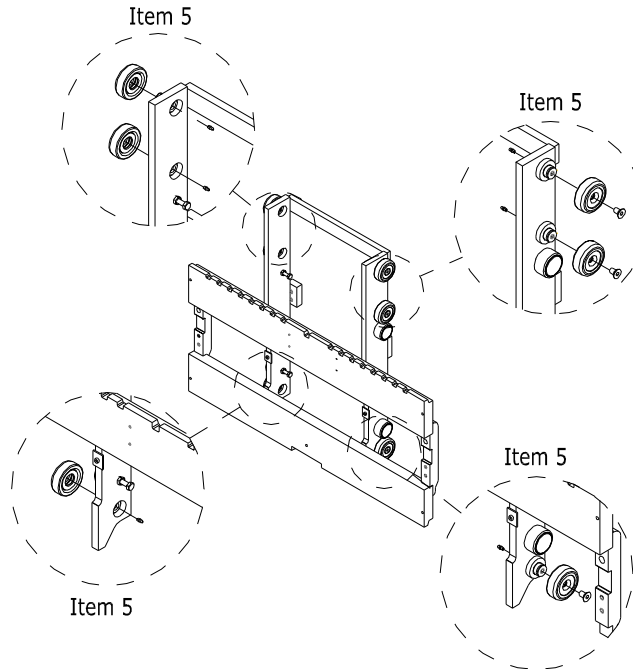
FEM2 Fork Carriage Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

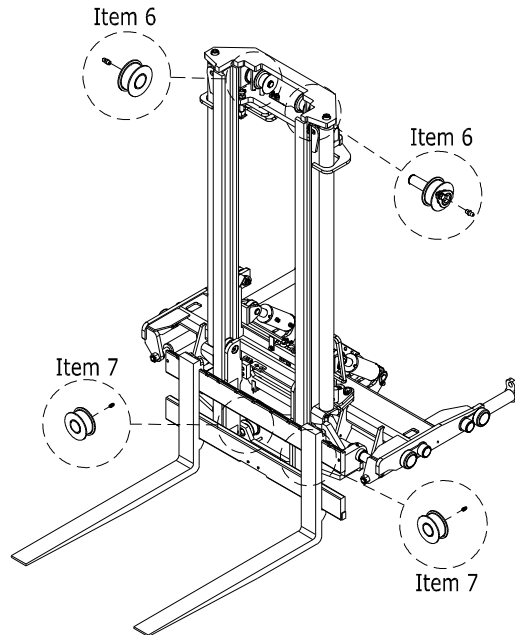
FEM3 Fork Carriage Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

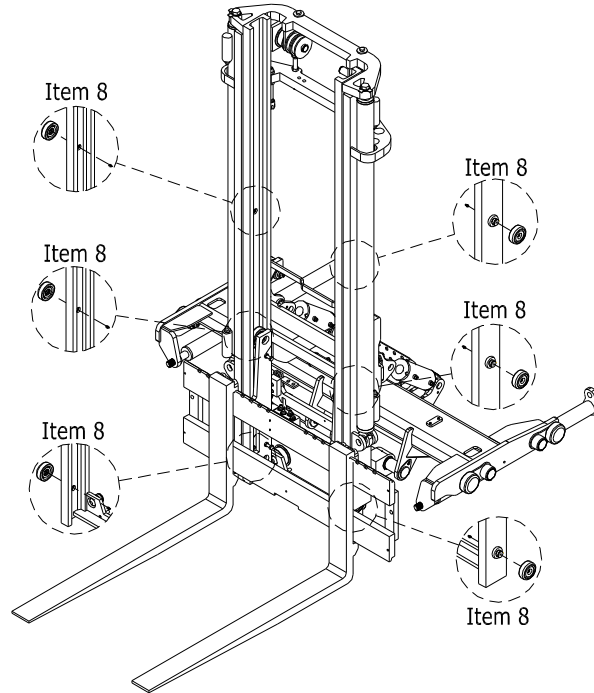
Chain Rollers Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

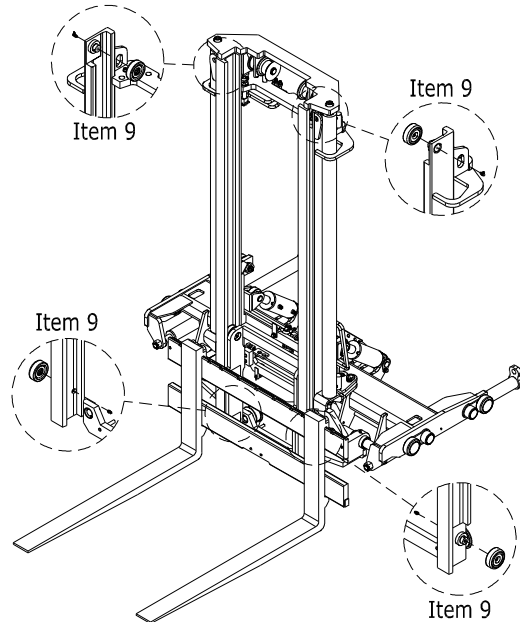
2t Mast Section Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

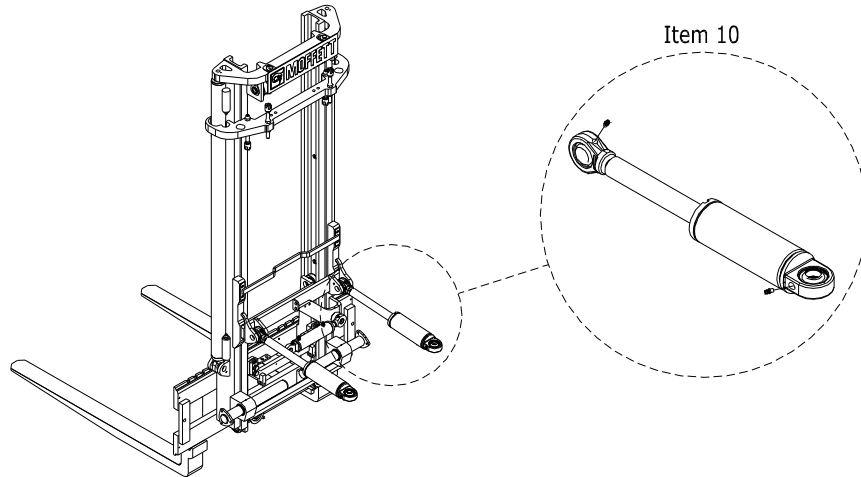
2.5t Mast Section Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

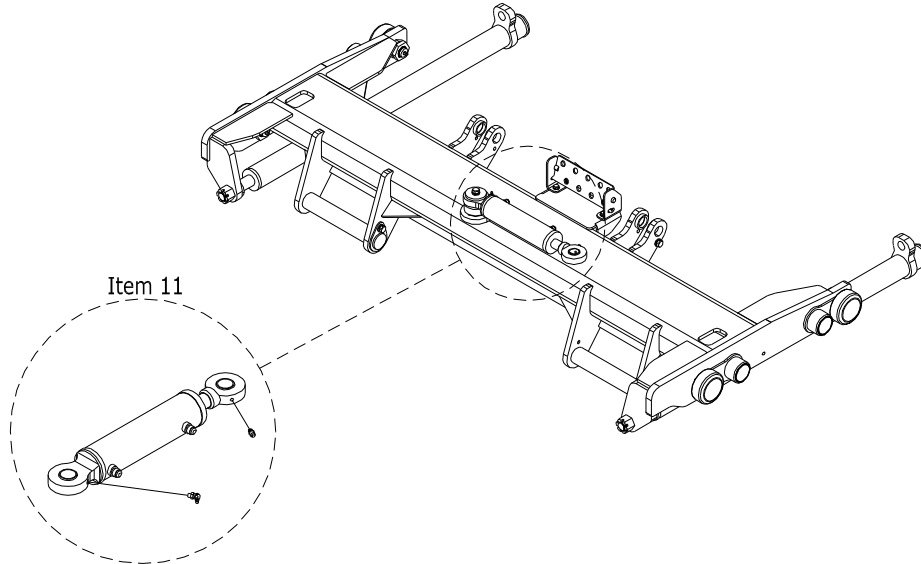
Tilt Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

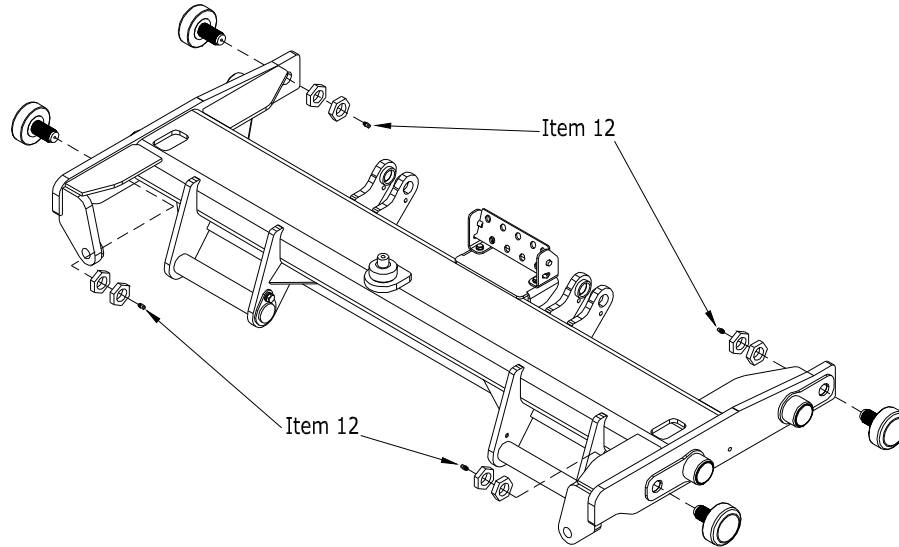
Side-Shift Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

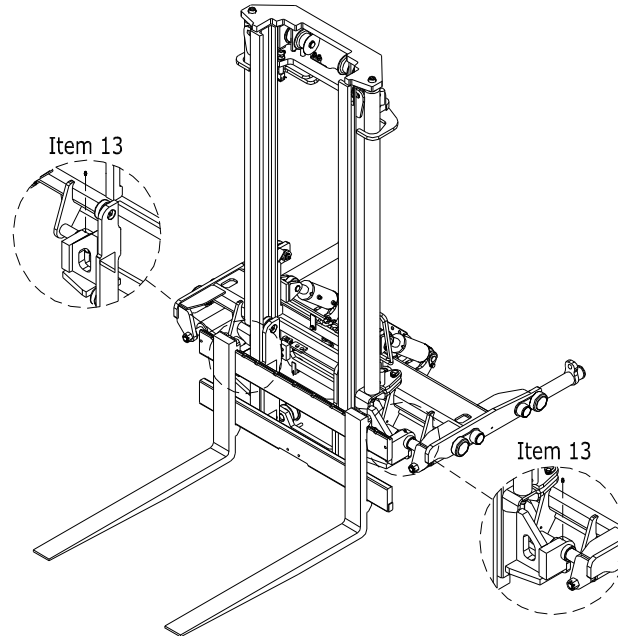
Mast Carriage Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

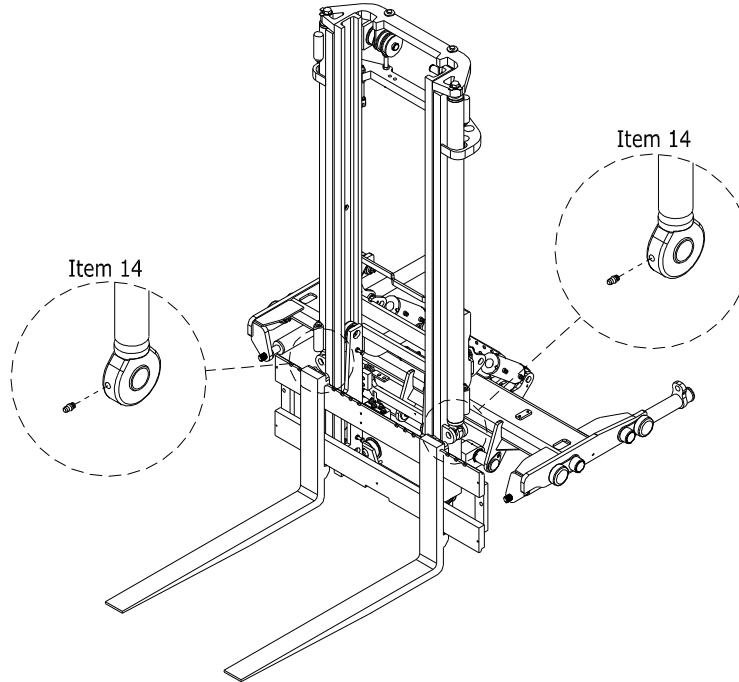
Side-Shift Bushing Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

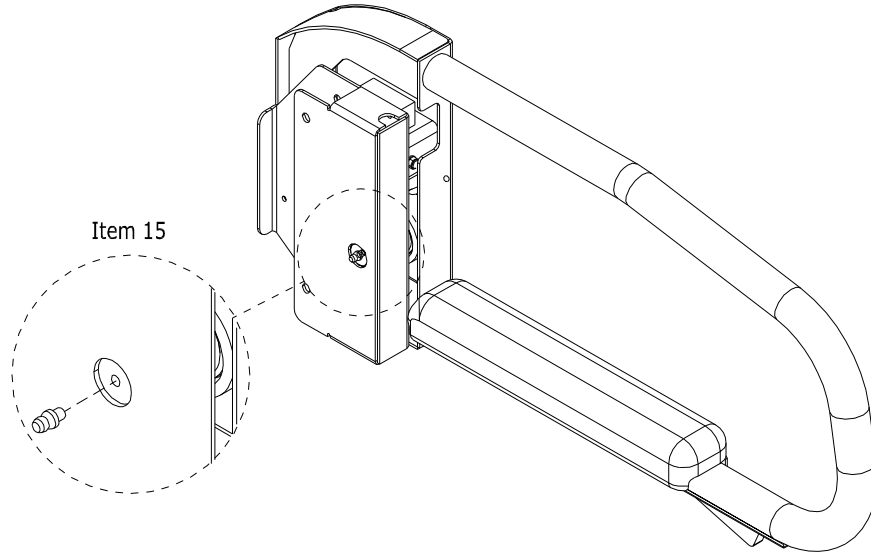
Lift Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

Rotating Side Guard



6. MAINTENANCE

Grease Point Chart (continued)

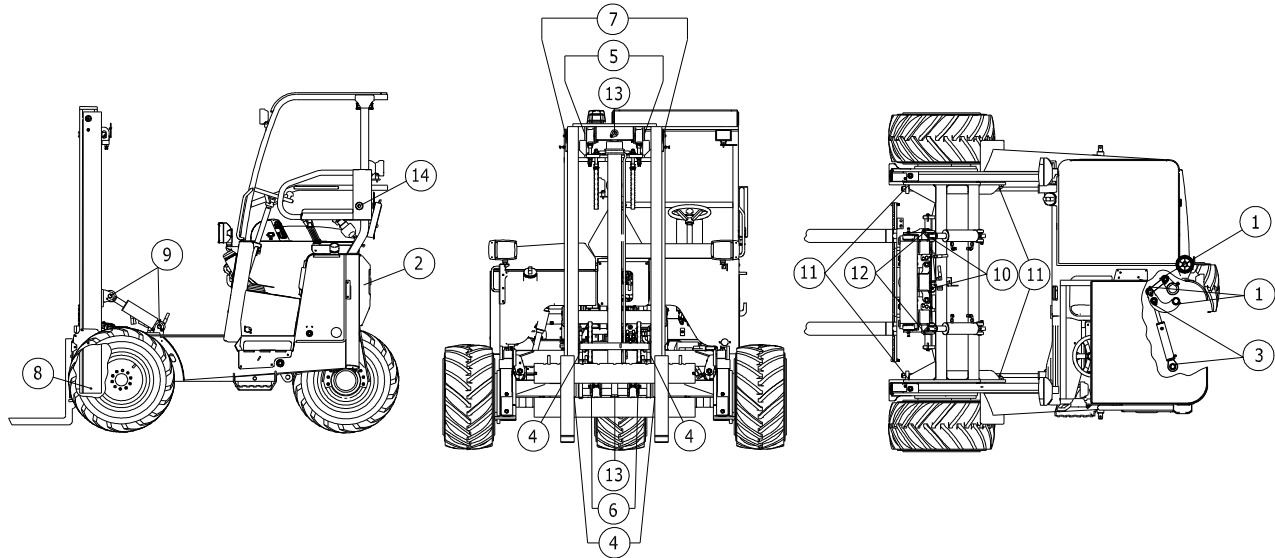
M50 Range

Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Steering Linkage	3	132
2	Spindle Housing	1	132
3	Steering Cylinder	2	132
4	Fork Carriage	4	133
5	Top Chain Rollers	2	134
6	Bottom Chain Rollers	2	134
7	Mast Outer Section	2	135
8	Mast Inner Section	2	135
9	Tilt Cylinder	4	136
10	Side-Shift Cylinder	2	137
11	Mast Carriage	4	138
12	Side-Shift Bushing	2	139
13	Lift Cylinder	2	140
14	Rotating Side Guard	1	141

6. MAINTENANCE

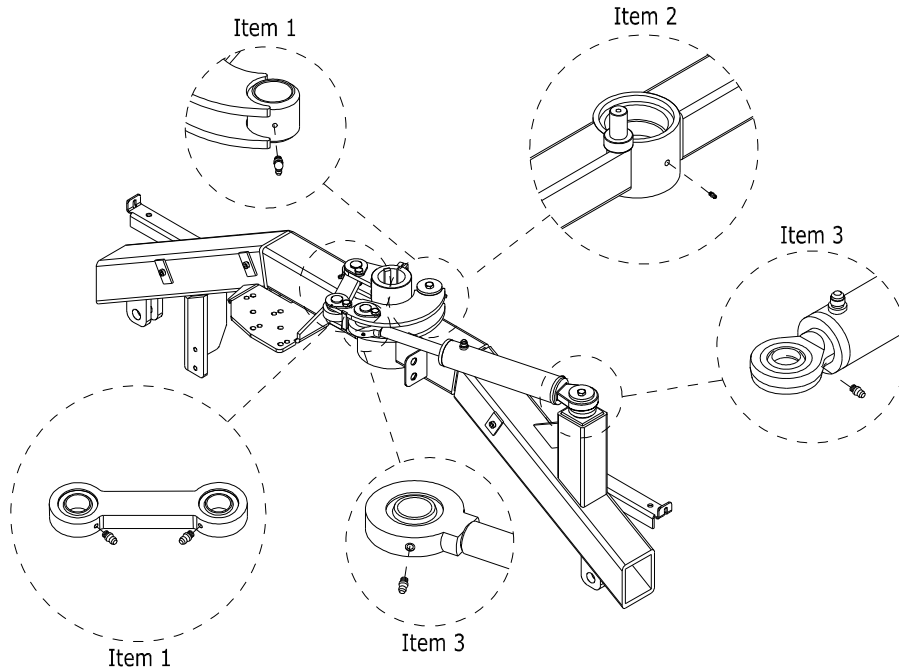
Grease Point Chart (continued)



6. MAINTENANCE

Grease Point Chart (continued)

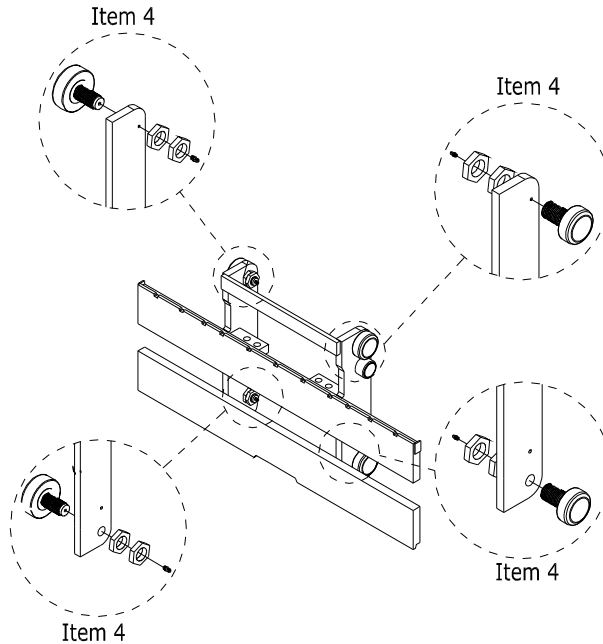
Steering Linkage, Spindle Housing and Steering Cylinder Grease Point



6. MAINTENANCE

Grease Point Chart (continued)

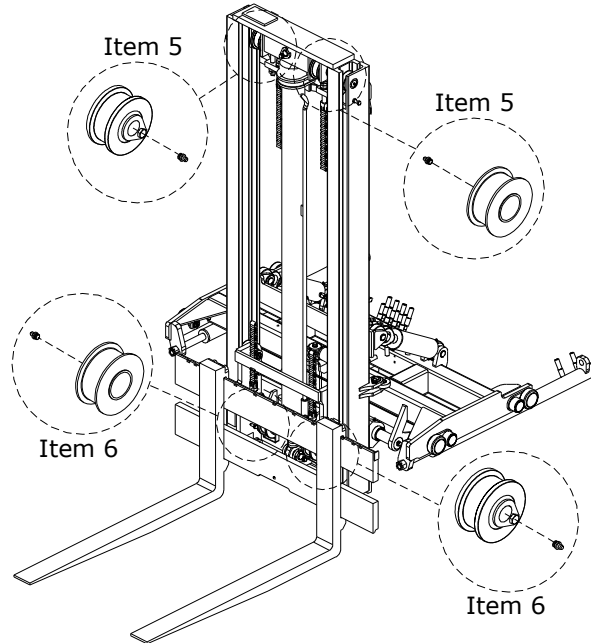
Fork Carriage Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

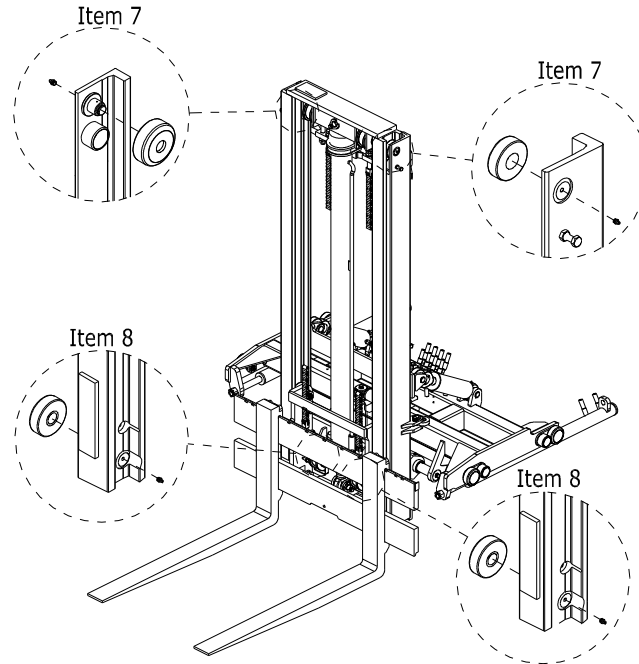
Chain Rollers Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

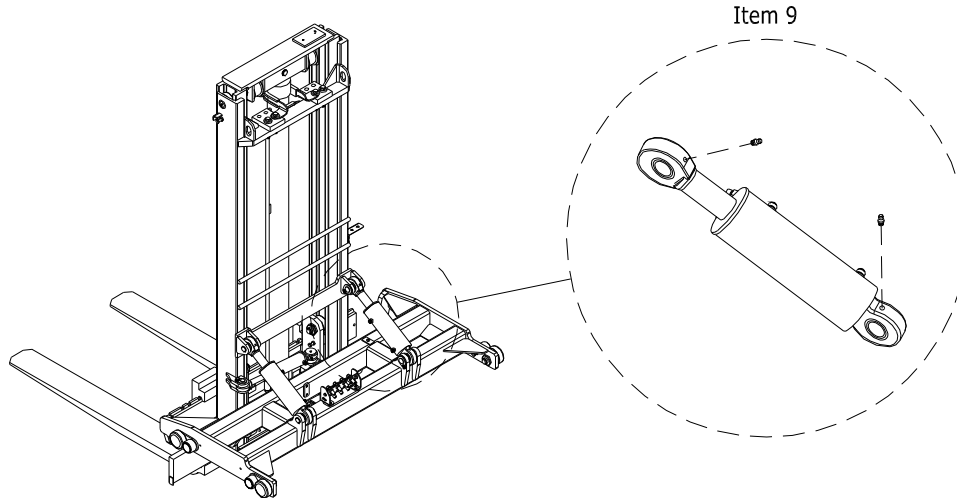
Mast Section Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

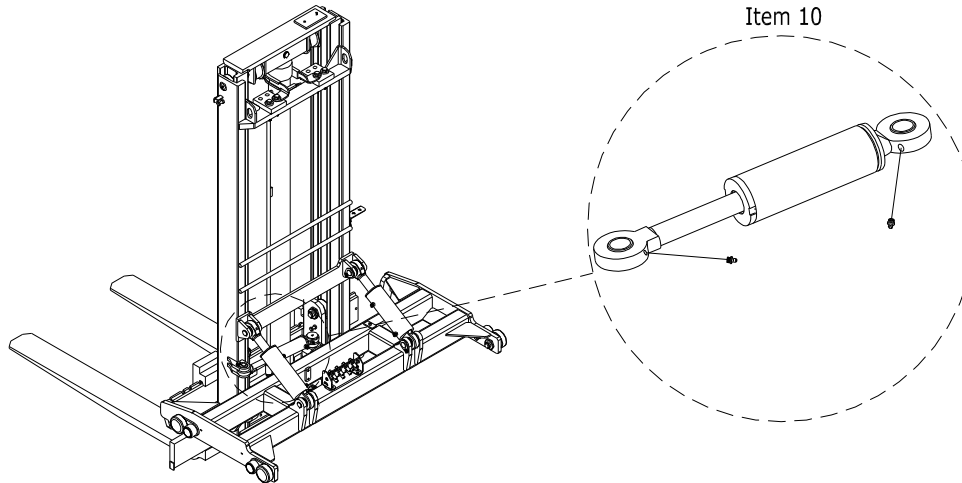
Tilt Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

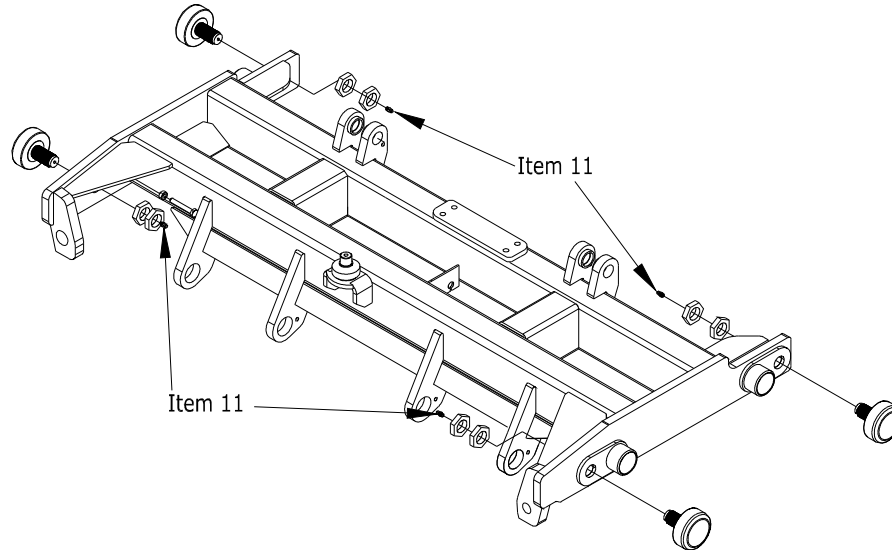
Side-Shift Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

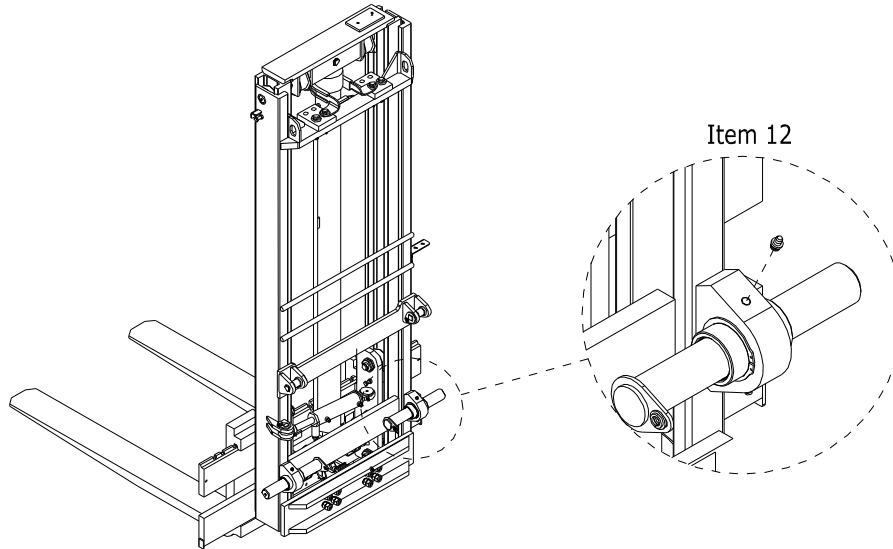
Mast Carriage Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

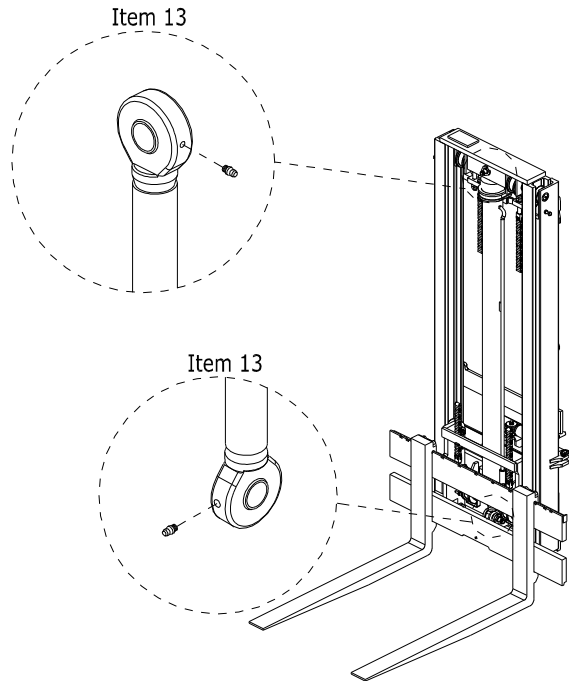
Side-Shift Bushing Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

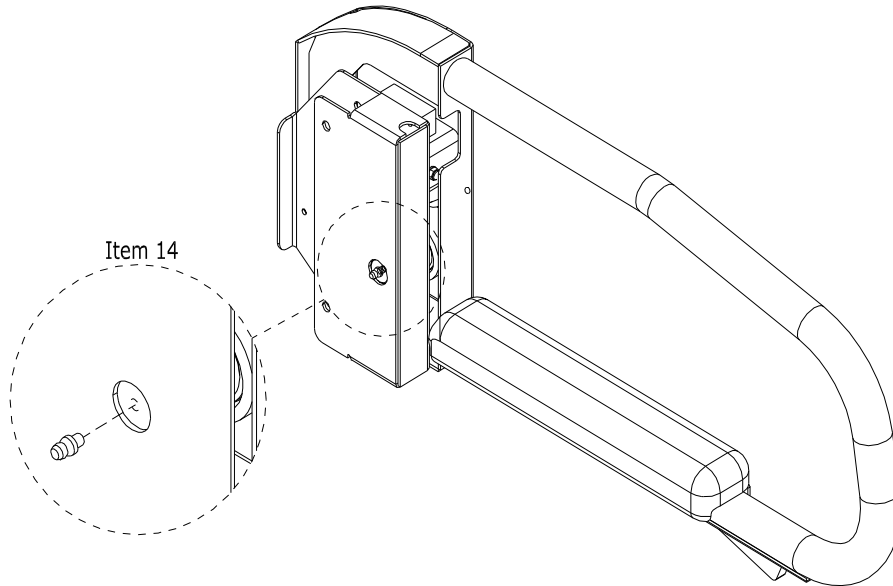
Lift Cylinder Grease Points



6. MAINTENANCE

Grease Point Chart (continued)

Rotating Side Guard



6. MAINTENANCE

Engine Oil

The engine oil should be MIL-L2104C or have the properties of API classification grades or higher. Change the type of engine oil according to the ambient temperature.

When using oil of different brands from the previous one, be sure to drain all the previous oil before adding the new engine oil.

AMBIENT TEMPERATURE	OIL SPECIFICATION		
Above 77°F (25°C)	SAE30	Or	SAE 10W-30 SAE 10W-40
32 to 77°F (0 to 25°C)	SAE20	Or	SAE 10W-30 SAE 10W-40
Below 32°F (0°C)	SAE10W	Or	SAE 10W-30 SAE 10W-40

6. MAINTENANCE

Engine Coolant

A mix of 50% permanent type antifreeze and 50% distilled water should be used to fill the cooling system. The coolant mix inhibits corrosion and gives the system protection down to a freeze point of -34°F (-37°C). A good quality coolant with a specific gravity of 1.080 at 60°F (15.5°C) should be used. The antifreeze should comply with one of the following specifications:

SAE J1034
BS 6580: 1985
MIL – A – 11755D
MIL – A – 461 53/B

Coolant concentration (freeze protection) and condition (rust inhibitors) will deteriorate over time. Test the coolant using a hydrometer for freeze protection and inspect the cooling system for contamination at least once per year or at each service, whichever occurs first.

Test and Inspect the Coolant	
Condition	Action
Freeze point too low (coolant concentration too high)	Add the correct amount of distilled water to adjust the freeze point to -34°F (-37°C)
Freeze point too high (coolant concentration too low)	Drain and replace with the proper coolant
Contamination in the cooling system	Drain and replace with the proper coolant
Coolant is two years old	Drain and replace with the proper coolant

6. MAINTENANCE

Engine Fuel Specification

Use a No.2-D grade of diesel fuel oil according to ASTM D975. This is a distillate fuel oil of lower volatility for engines in industrial and heavy mobile service (SAE J313 Jun87). Be sure to use a strainer when filling the fuel tank, as dirt or sand in the fuel may cause trouble in the fuel injection pump. Always use diesel fuel. You are required not to use alternative fuel because its quality is unknown or it may be inferior in quality. Kerosene which is very low in cetane rating adversely affects the engine. Diesel fuel differs in grades depending on the temperature. Refer to the following tables for specific minimum and maximum fuel properties.

Flash Point °F (°C)	Water and Sediment Volume %	Carbon Residue on 10% Residium %	Ash weight %
Min	Max	Max	Max
125 (52)	0.05	0.35	0.01

Distillation Temperature °F (°C) 90% Point		Viscosity Kinematic cSt or mm ² /s at 104°F (40°C)		Viscosity Saybolt SUS At 100°F (37.8°C)		Sulphur Weight %	Copper Strip Corrosion	Cetane Number
Min	Max	Min	Max	Min	Max	Max	Max	Min
540 (282)	640 (338)	1.9	4.1	32.6	40.1	0.50	No.3	40

6. MAINTENANCE

Hydraulic Fluid

Oils conforming to the International Standard I.S.O. 6743-4HV VG grade with improved viscosity/temperature characteristics should be used. (Some countries may still use DIN 51524 PART 3). The hydraulic oil used in the Hiab Moffett Truck-Mounted Forklift must have the correct temperature range for the ambient temperature in which the machine is being operated. If the operating temperature is outside the range of the oil supplied with the Hiab Moffett Truck-Mounted Forklift, the oil should be replaced with the correct grade. Some examples of commercially available oils are listed below. Make sure the correct type is used in the relevant ambient environment.

Note: The sequence in which the brand names are listed does not signify any grading as to their quality or preference.

AMBIENT TEMPERATURE	Low Range -4°F to 77°F -20°C to 25°C	Standard Range 14°F to 95°F -10°C to 35°C	High Range 32°F to 113°F 0°C to 45°C
Castrol: Hypsin	AWH 32	AWH 46	AWH 68
BP: Bartran	HV 32	HV 46	HV 68
Esso: Univis	N 32	N 46	N 68
Mobil:	13 M	15 M	16 M
Shell: Tellus Oil	T 32	T 46	T 68
Texaco:	HDZ 32	HDZ 46	HDZ 60

6. MAINTENANCE

Chain Lubricant Specification

The lubricant oil's viscosity should be chosen so that it will remain fluid at all occurring ambient temperatures. Under normal temperature conditions, lubricating oils with a viscosity from SAE 20 to SAE 40 (0.07 to 3.1in²/s at 104°F) are suitable. The following are examples of commercially available chain lubricating products.

1. Rexnord High-Performance Chain Spray.
2. BP Energol Transmission Oil 80.
3. ESSO Transmission Oil ST80.
4. Shell Tonna Oil T200.

Grease Specification

The recommended grease for all moving parts is Lithium EP2 or a grease of equivalent specification. This is particularly important for all bearings and rollers.

Note: When carrying out maintenance/service work always use klüberpaste® on pins, bearing stubs, 4-Way swivels, steering collars etc. Refer to the service manual for further details.

6. MAINTENANCE

Tire Inflation

See the chart for the recommended tire inflation pressures used by the Hiab Moffett Truck-Mounted Forklift.

It is recommended that the tread depth should never fall below 20% of the original tread depth.



WARNING:

Compressed Air. Using compressed air can be dangerous. Obey all statutory notices and apply all relevant health and safety regulations.

Wheel Nut Torque		
Model	Torque	Wheel nut P/N
M40/M50	184lb.ft	503.055.0345

Note: Changes in the tire ply will affect the inflation pressure. Always check the max inflation pressure indicated on the tire.

M5 Range

Specification			
Tire	Ply	PSI	Bar
26x12-12	12	65	4.5
27x10-12	14	102	7.0
29x12.5-15	8	46.5	3.2
280x60-15.5	6	51	3.5
280x60-15.5	12	84	5.7

4-Way Specification

Tire	Ply	PSI	Bar
27x10.5-15	8	60	4.1

M8 Range

Specification			
Tire	Ply	PSI	Bar
31.5x13-16.5	10	70	4.8
31x15.5-15	8	45	3.1
27x10-12	14	102	7.0
29x12.5-15	6	30	2.07

4-Way Front Specification

Tire	Ply	PSI	Bar
10x16.5	10	75	5.2
12x16.5	10	76	5.4

4-Way Rear Specification

Tire	Ply	PSI	Bar
31x15.5-15	8	45	3.1

6. MAINTENANCE

Noise and Vibration data

Noise Data

Noise (In accordance with EN12053)

The figures below are a combination of the values for the operating modes "DRIVE", "LIFT" and "IDLE" weighted with a proportion factor and is made in accordance with EN12053, 1997

- | | |
|-------------------------|-------------|
| 1. Sound Power Level | 101 LWA dB |
| 2. Sound Pressure Level | 84.7 LPA dB |

The figure below is a guaranteed sound power level to ISO4871, 1996

- | | |
|---------------------------------|------------|
| 1. Guaranteed Sound Power Level | 101 LWA dB |
|---------------------------------|------------|

Vibration Data

Vibration (In accordance with EN13059)

Weighted rms Acceleration Whole Body Vibration (ft/s ²)	4.43
---	------

Note: Please be aware that the vibration levels may vary from those shown depending on the specification of the machine.

7. SPECIAL PROCEDURES

Jump Starting

Safety



WARNING

Procedure. If you are unsure how to follow this procedure, we strongly recommend that you seek the help of a competent mechanic.

Batteries contain sulfuric acid which is poisonous and corrosive. Wear protective safety glasses when jump starting and avoid spilling acid on your skin, clothing or the vehicle.

Do not try to charge a frozen battery. If you try to charge a frozen battery or jump start and run the engine, the battery could explode.

Do not use the battery if the electrolyte is frozen. To prevent the battery electrolyte from freezing, keep the battery at full charge.

Do not smoke when checking the battery electrolyte levels. Batteries give off a flammable gas that can explode. When starting another machine, make sure the two machines do not touch as this could cause sparks. Sparks could ignite the battery gas. If this happens the battery could explode.

Even with the starter switch set to the off position some circuits will still be energized when the external power supply is connected. Ensure all machine switches are set to the off position before connecting the external power supply.

Only use jump start cables that are in good condition with securely attached connectors.

Connect both ends of one jump start cable before connecting the other cable.



CAUTION:

Booster Supply. The booster supply should not be more than 12 volts. Using a higher voltage supply will damage your machines electrical system. Do not connect two batteries together to give 24 volts. This could burn out the induction manifold heater and damage the starter motor.



WARNING:

Electric Shock. Keep all metal straps and fasteners from clothes or jewelry clear of the positive (+) battery terminal. Such items can cause a short between the battery terminal and nearby metal framework. If this happens you could get burned.

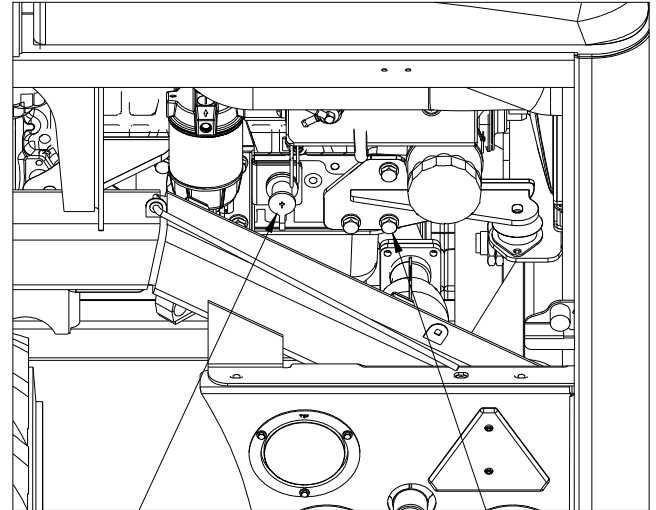
7. SPECIAL PROCEDURES

Jump Starting (continued)

Procedure

Note: Your machine has a 12 volt starting system. The negative terminal (-) is connected to the engine cylinder block.

- A) Make sure that the park brake is engaged and the forward/reverse pedal or lever is in neutral.
- B) Ensure all switches are set to the off position.
- C) Open the rear door.
- D) Connect the positive (+) cable to the positive (+) terminal jump start plug. Connect the other end of this cable to the positive (+) terminal on the booster supply.
- E) Connect the negative (-) cable to a ground point on the machine. The engine mount bolts are easily accessible as a ground point.
- F) Connect the other end of the negative (-) cable to the negative (-) terminal on the booster supply.
- G) Start the engine. (Refer to Starting the Engine).
- H) Disconnect the negative (-) booster cable from the forklift, and then disconnect it from the booster supply. Disconnect the positive (+) booster cable from the jump start point on the forklift, and then disconnect it from the booster supply.
- I) Close and lock the rear door.



JUMP START PLUG
POSITIVE (+) TERMINAL

JUMP START GROUND
NEGATIVE (-) TERMINAL

8. ATTACHMENTS

Using other Attachments

The Hiab Moffett Truck-Mounted Forklift is available with a range of attachments fitted from the factory. The general rule is that any attachment used on this forklift must be intended for the function of lifting only. This forklift is not designed to PULL, TOW or DRAG other objects. DO NOT use attachments that perform these functions with this forklift.

All Hiab Moffett machines supplied with attachments have special capacity charts taking into account any additional attachment weight and lost load center and how this affects the stability and capacity of the machine. Third party suppliers may not supply this information with their attachments and so only approved attachments must be fitted to the Hiab Moffett Truck-Mounted Forklift.

Cargotec Ireland makes no representations or warranties, express or implied as to the design, manufacture or fitness for use with this forklift of any third party source attachments.

This forklift is not intended to be used and should not be used with any attachment that would alter the center of gravity stability of this forklift. Cargotec Ireland assumes no liability for any third party attachment that would alter the center of gravity stability.

If in doubt contact your local Hiab Moffett dealer for advice.

9. CERTIFICATE OF CONFORMITY

Certificate of Conformity

The Hiab Moffett Truck-Mounted Forklift is supplied with a certificate of conformity. This document certifies the directives that the Hiab Moffett Truck-Mounted Forklift is in compliance with.



MANUFACTURER'S CERTIFICATE OF CONFORMITY IN RESPECT OF SELF-PROPELLED FORKLIFT TRUCKS

Cargotec Ireland Ltd.

Ardee Road, Dundalk, Co. Louth, Ireland

I hereby certify that the self-propelled moving mast forklift truck:

Type	Serial Number:
M40 Range	XXXXXXXX - XXXXXXXX
M45 Range	XXXXXXXX - XXXXXXXX
M50 LITE Range	XXXXXXXX - XXXXXXXX
M50 Range	XXXXXXX - XXXXXXXX
M55 Range	XXXXXXX - XXXXXXXX
M70 Range	XXXXXXX - XXXXXXXX
M80 Range	XXXXXXX - XXXXXXXX
P6000 Range	XXXXXXX - XXXXXXXX
LP5500 Range	XXXXXXX - XXXXXXXX

Conforms in all respects to the requirements of:

- Council Directive 2006/42/EC & 98/37/EC of 22nd June 1998 on the approximation of the Laws of the Member States relating to machinery - The Machinery Directive (formerly Directive 89/392/EEC amended by 91/368/EEC, 93/44/EEC and 93/68/EEC)
- Directive on Electromagnetic Compatibility (EMC) 89/336/CEE as amended by EC Directive 92/31/EEC. BS EN 12895:2000 - Industrial Trucks EMC
- BS EN 1726-1:1999 Safety of Industrial Trucks
- Directive ASME / ANSI B56.1-1998 Safety standard for low lift and high lift trucks.

Year of Manufacture: 2010

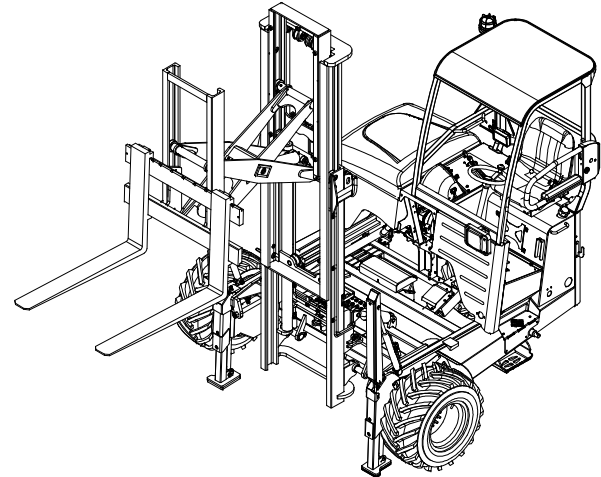
Engineering Director



Operator Manual

The Hiab Moffett Truck-Mounted Forklift with Lift Assist and Pantograph

Note: This section of the manual describes the additional operating instructions for the Hiab Moffett Truck-Mounted Forklift Lift Assist and Pantograph unit and should only be used as a supplement to the operator manual.



Delivering **Confidence**

B1. OVERVIEW - LIFT ASSIST AND PANTOGRAPH

Overview of Lift Assist

Lift Assist is an attachment which increases the capacity of the machine. When fitted in conjunction with a pantograph reach device, it allows the machine to lift increased capacity from extended load centers.

It is designed to be used over a truck/trailer bed and **MUST NOT** be used in any other circumstances.

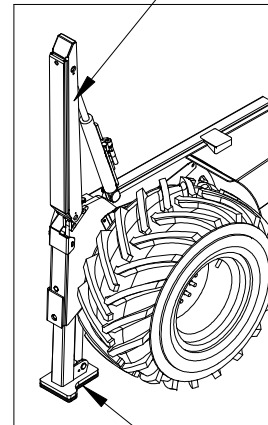
Lift Assist reacts the extra load moment of the extended load center into the side of the truck/trailer bed and enables an increased capacity to be lifted from extended load centers.

Lift Assist relies on good stabilizer friction to react the extra load moment into the side of the truck/trailer. To ensure this reaction takes place the stabilizers are fitted with friction pads. The stabilizers **MUST NEVER** be raised while Lift Assist is in use and **MUST ALWAYS** be placed on firm level ground.

If at any time during any lifting operation stabilizer friction is compromised then the load being lifted **MUST** be lowered and a smaller load lifted or alternative ground conditions with improved stabilizer friction must be found.

The Lift Assist system is fitted with a changeover valve which utilizes the stabilizer hydraulic feed to operate the Lift Assist arms as required. When the hydraulics are used to raise the arms of the Lift Assist, the force they can generate is limited to ensure they do not exert any rearward force on the machine during deployment. When the Lift Assist arms are deployed they are prevented from being forced down by check valves in the system.

Lift Assist Attachment



Stabilizer Friction Pad

B2. SAFETY CHECKLIST - LIFT ASSIST AND PANTOGRAPH

Pantograph and Lift Assist Safety

Note: The additional safety checklist in this section is specific to Lift Assist and pantograph. This should be used in conjunction with the safety checklist for the standard machine as outlined at the start of this manual.



WARNING:

Lift Assist. Do not use the Lift Assist unless both arms are in full contact with the truck or trailer bed. This is dependent on the load position at the front and rear of the truck/trailer. If there is insufficient space to use the Lift Assist, the operator must drive to the other side of the truck or trailer to finish unloading.



WARNING:

Lift Assist. Do not use the Lift Assist if unloading from unpaved or uneven surfaces.



WARNING:

Pantograph. Do not lift the load more than 4" clear of the bed while the pantograph is extended.



WARNING:

Procedure. The Lift Assist function must only be used as outlined in the operating procedures of this manual.



WARNING:

Capacity. Do not exceed the capacity shown on the load chart for Lift Assist in combination with pantograph reach device.



WARNING:

Stabilizers. Make sure the stabilizers are on firm ground or pavement before using Lift Assist.



WARNING:

Stabilizers. Never raise stabilizers while the Lift Assist arms are extended. Always retract the pantograph and retract the Lift Assist arms prior to raising stabilizers.



WARNING:

Stabilizers. Make sure the stabilizer friction pads that are fitted and are in good condition.

B2. SAFETY CHECKLIST - LIFT ASSIST AND PANTOGRAPH

Pantograph and Lift Assist Safety (continued)



CAUTION:

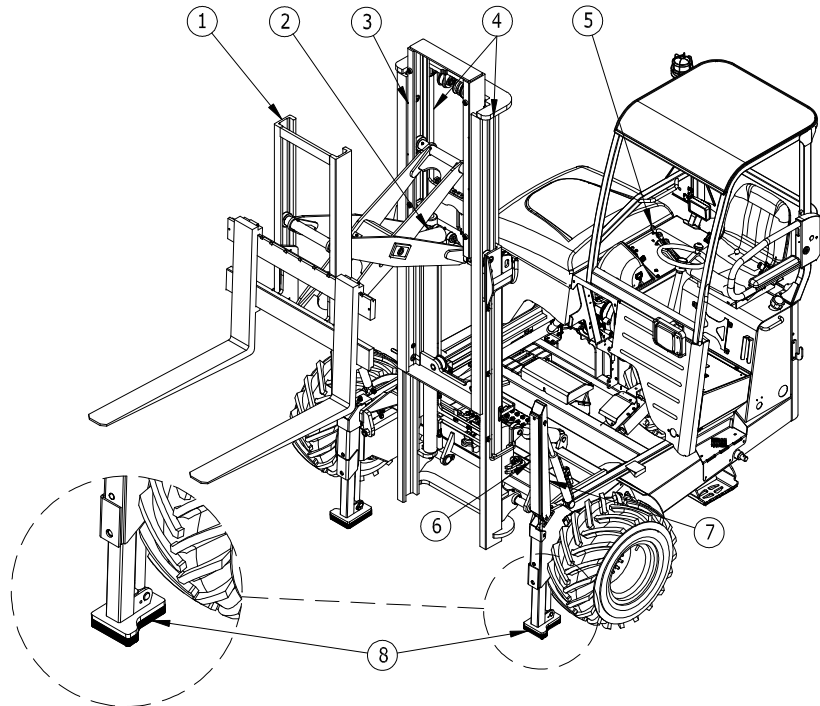
Truck Mounting. Never truck mount with the pantograph extended. Always truck mount with the pantograph retracted as outlined in the normal mounting procedure.

B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

Major Components

1. Pantograph Device
2. Scissor Cylinder
3. Pantograph Mast
4. Lift Rams x 2
5. Hydraulic Controls
6. Nylon Wear Strip
7. Lift Assist Arms x 2
8. Stabilizer Friction Pads x 2

Note: If the stabilizer friction pads become excessively worn, damaged or are missing, do not use the Lift Assist function as its performance will be reduced.



B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

Safety Decals

Note: The additional safety decals listed in this section are specific to Lift Assist and pantograph and should be used in conjunction with the safety decals on the standard machine.

Part No. 517.065.0013



WARNING

LIMITATIONS OF LIFT ASSIST SYSTEM

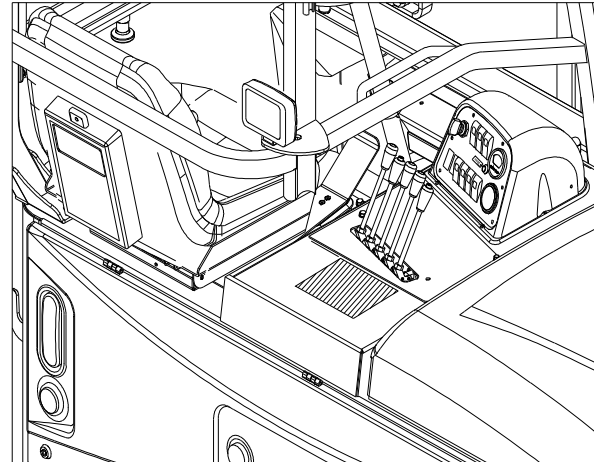
THE LIFT ASSIST ARMS ON THIS MACHINE ENABLE THE MACHINE TO LIFT LOADS FROM EXTENDED LOAD CENTERS AS OUTLINED ON THE LOADCHART. ALWAYS REFER TO OPERATORS MANUAL FOR CORRECT OPERATION PROCEDURE BEFORE USING LIFT ASSIST.

THE LIFT ASSIST ARMS **MUST ONLY** BE USED TO LIFT LOADS WHEN:

- BOTH STABILIZERS ARE **FULLY** LOWERED ON A FIRM LEVEL SURFACE OF CONCRETE OR ASPHALT (SEE NOTE).
- BOTH LIFT ASSIST ARMS ARE **FULLY** UP AND ARE IN CONTACT WITH THE SIDE OF THE TRUCK OR TRAILER BED.
- THE LOAD TO BE LIFTED ALWAYS STAYS **OVER** THE TRUCK / TRAILER BED UNTIL THE REACH DEVICE IS **FULLY RETRACTED** AND THE LIFT HEIGHT DOES NOT EXCEED THE LIFT CAPACITY INDICATED ON THE LOAD CHART.

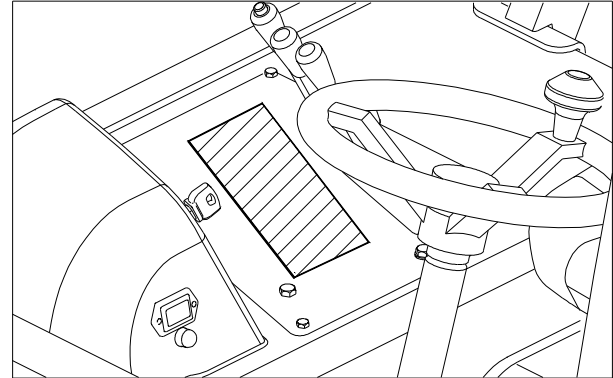
NOTE: IF DURING THE LIFTING OPERATION THE STABILIZERS START TO SLIP THE LOAD MUST BE LOWERED IMMEDIATELY AND A SMALLER LOAD - LOAD CENTER LIFTED OR IMPROVED GROUND CONDITIONS ARE FOUND.

517.065.0013



Safety Decals (continued)

A diagram of a 1000mm square table with 12 chairs and 2 cameras. The chairs are arranged in two rows of six. The cameras are positioned at the top and bottom center of the table. Arrows indicate the movement of the chairs and the cameras.



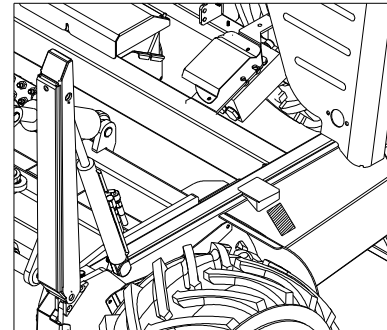
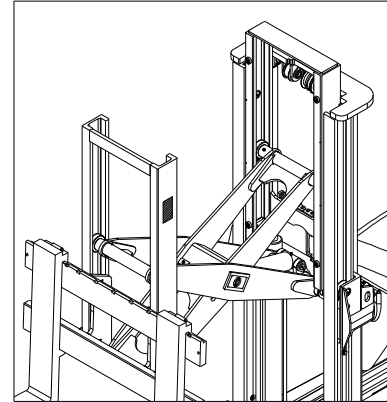
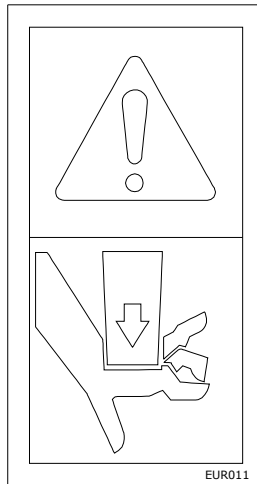
159

B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

Safety Decals (continued)

Note: There are additional EUR011 decals on right hand side that are not shown here.

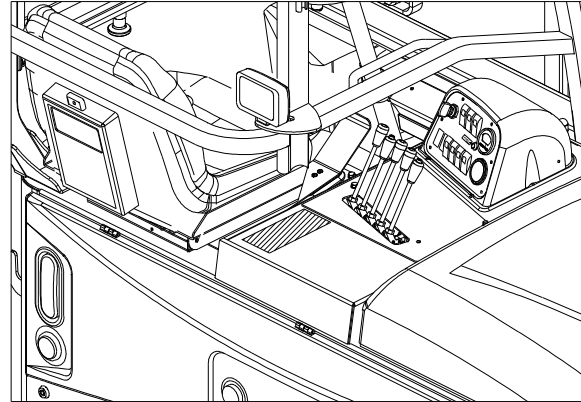
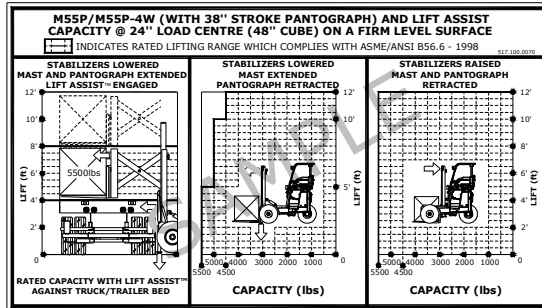
Part Number EUR011



B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

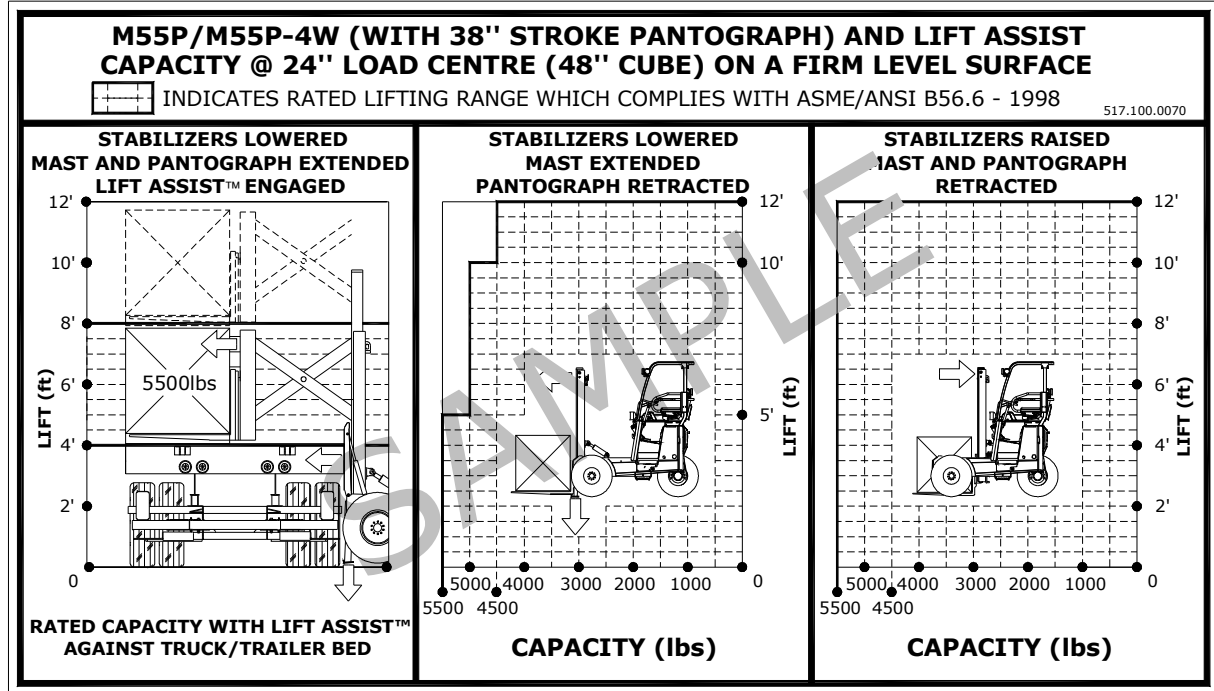
Safety Decals (continued)

Part No. 517.100.0070



B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

Safety Decals (continued)



B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

Hydraulic Levers

The Lift Assist and pantograph machine is fitted with two dual function levers. The function of these levers is outlined below and on the valve bank decal. STUDY THE VALVE BANK DECAL FOR YOUR HIAB MOFFETT TRUCK-MOUNTED FORKLIFT BEFORE OPERATING THE MACHINE. UNDERSTAND THE FUNCTION OF THE HYDRAULIC LEVERS FULLY BEFORE OPERATING THE MACHINE.

- A. Forks – Raise and Lower:** This lever raises and lowers the forks. Forward movement of the lever will lower the forks down. Backward movement of the lever will raise the forks up.
- B. Mast or Pantograph:** This lever is fitted with a button which gives the lever two functions B1 and B2.
 - B1. Mast – Extend and Retract:** Without the red button pressed (off), this lever moves the mast forwards and backwards. Forward movement of the lever extends the mast forward, away from the operator (out). Backward movement of the lever retracts the mast back towards the operator (in). When placing a load, the mast should be extended only when the stabilizers are fully lowered.

- B2. Pantograph – Extend and Retract:** With the red button pressed (on), pushing this lever forward will extend the pantograph section (out). Pressing the button (on) and pulling this lever backwards will retract the pantograph section (in).
- C. Tilt – Forward and Back:** This lever tilts the mast forwards and backwards. Forward movement of the lever tilts the mast forward (forks down). Backward movement of the lever tilts the mast rearward (forks up). Loads should normally be transported with the mast tilted back.
- D. Side-Shift – Left and Right:** This lever moves the mast to the right or left. Forward movement of the lever shifts the mast to the left. Backward movement of the lever shifts the mast to the right.

B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

Hydraulic Levers (continued)

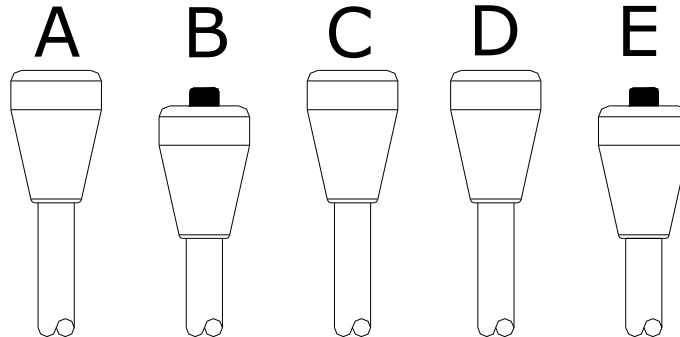
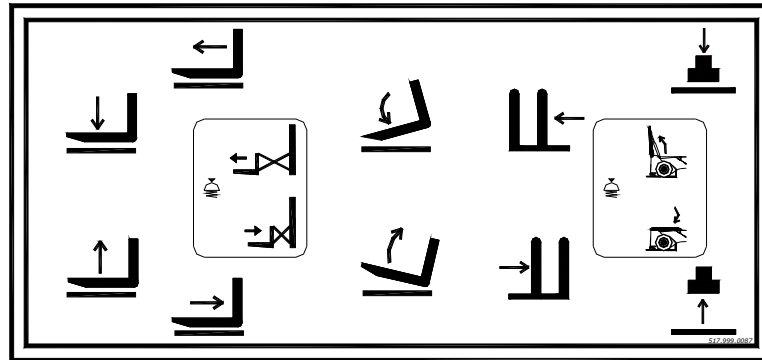
- E. Stabilizers or Lift Assist:** This lever is fitted with a button which gives the lever two functions E1 and E2.
- E1. Stabilizers – Lower and Raise:** Without the red button pressed (off), this lever raises and lowers the stabilizing legs. When placing a load, the stabilizers must always be fully lowered before moving the mast forward. Forward movement of the lever will lower the stabilizers down. Backwards movement of the lever raises the stabilizers up. When lifting a load, never raise the stabilizers until the mast is fully retracted.
- E2. Lift Assist – Raise and Lower:** With the red button pressed (on) this lever raises and lowers the Lift Assist arms. Pressing the button (on) and moving the lever forward raises the Lift Assist arms (up). Pressing the button and moving the lever backwards lowers the Lift Assist arms (down).

Note: When the ground is not firm enough to support the stabilizers extra support plates must be used of sufficient size and strength to ensure they do not sink, bend or buckle during operation. A second person may be required to check the support plates. If at any time the stabilizers or pads show signs of sinking, the procedure must be stopped immediately, the mast fully retracted and an alternative location found. If in doubt prior to or during an operation on loose, uneven or soft surfaces, stop. Always consider safety first.

Note: If during the lifting operation the stabilizers start to slip, the load must be lowered immediately and a smaller load center lifted or improved ground conditions found.

B3. INTRODUCTION - LIFT ASSIST AND PANTOGRAPH

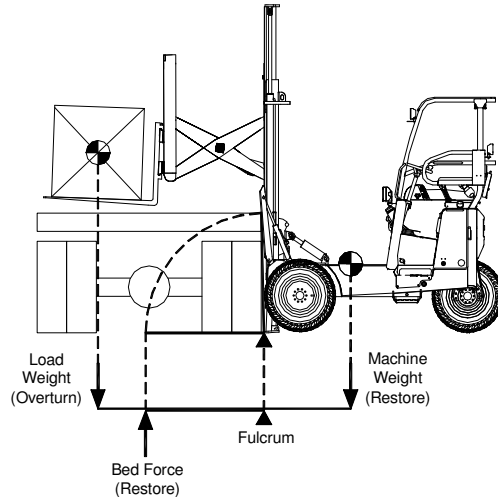
Hydraulic Levers (continued)



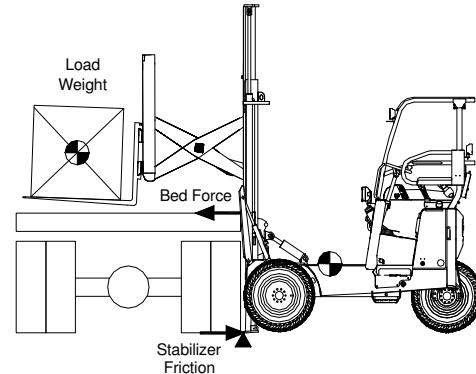
B4. CENTER OF GRAVITY - LIFT ASSIST AND PANTOGRAPH

Load Moment

When Lift Assist is fitted in conjunction with a pantograph reach device, it adds to the machine's restoring moment by reacting the extra overturn load moment created by the extended load center into the side of the truck/trailer.

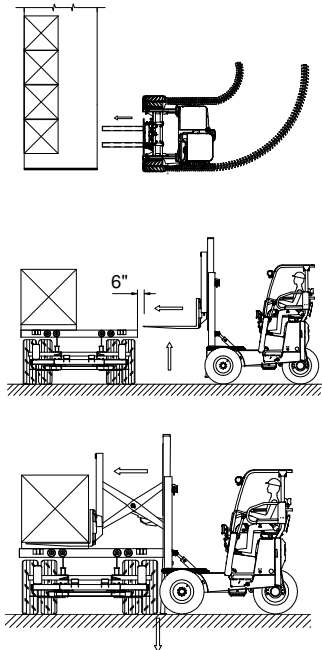


The reaction into the side of the truck/trailer is counter reacted by the stabilizers. To ensure this reaction takes place the stabilizers **MUST NEVER** be raised while Lift Assist is in use and the stabilizers **MUST ALWAYS** be placed on firm level ground. If at any time during any lifting operation stabilizer friction is compromised, then the load being lifted **MUST** be lowered and a smaller load lifted or alternative ground conditions with improved stabilizer friction must be found.



B5. OPERATING PROCEDURES - LIFT ASSIST AND PANTOGRAPH

Operating the Lift Assist and Pantograph

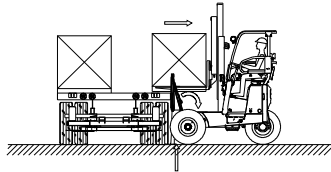
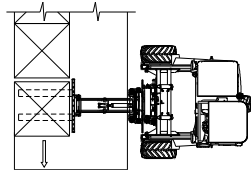
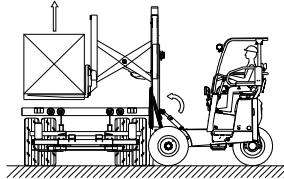


Note: These procedures are in addition to the operating procedures outlined for the standard machine in Section 4 of this manual.

1. Align the forklift and the forks with the center of the load.
2. Approach at 90 degrees to the truck/trailer bed with the mast fully forward and the forks as low as possible.
3. Drive forward slowly until the front of the forks are approximately 6" from the truck or trailer bed.
4. Tilt the mast forward to the vertical position and raise the forks to bed height.
5. Drive forward as far as possible without the mast making contact with the bed.
6. Do not contact the tires or any part of the truck or trailer with the stabilizers.
7. Extend the pantograph fully to engage the pallet.
8. Ensure the surface is firm and level and then LOWER the stabilizers fully.
9. Never lower the stabilizers near the edge of a curb because they may slip off the edge or the edge may break away.

B5. OPERATING PROCEDURES - LIFT ASSIST AND PANTOGRAPH

Operating the Lift Assist and Pantograph (continued)



10. Raise the Lift Assist arms until fully extended.



WARNING:

Lift Assist. Do not use the Lift Assist unless both arms are in full contact with the truck or trailer bed. This is dependent on load position at the front and rear of the truck/trailer. If there is insufficient space to use the Lift Assist, the operator must drive to the other side of the truck or trailer to finish unloading.



WARNING:

Lift Assist. Do not use the Lift Assist if unloading from unpaved or uneven surfaces.

11. Raise the load slowly just enough to clear the bed.



WARNING:

Pantograph. Do not lift the load more than 4" clear of the bed while the pantograph is extended.

12. Side-shift enough to clear the adjacent pallet or headache rack.

13. Retract the pantograph fully.

14. Double fork if necessary to ensure load is in contact with fork face.

15. Tilt the mast rearward enough to stabilize the load.

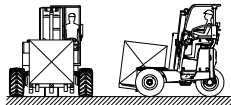
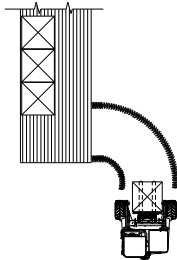
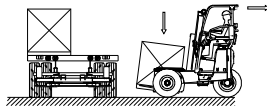
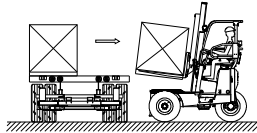
16. Retract the mast fully.

17. Lower the Lift Assist arms fully.

18. Raise the stabilizers fully.

B5. OPERATING PROCEDURES - LIFT ASSIST AND PANTOGRAPH

Operating the Lift Assist and Pantograph (continued)



- 19. Ensure the rear wheel is pointing straight ahead.
- 20. Reverse straight back to clear the truck or trailer bed (looking in the direction of travel).

- 21. Lower the load to a level just above the frame.
- 22. Side-shift the mast to the center position.
- 23. Lower the load as low as possible within the frame.

- 24. Turn the forklift in the intended direction of travel.

- 25. Slowly drive away, looking in the direction of travel.

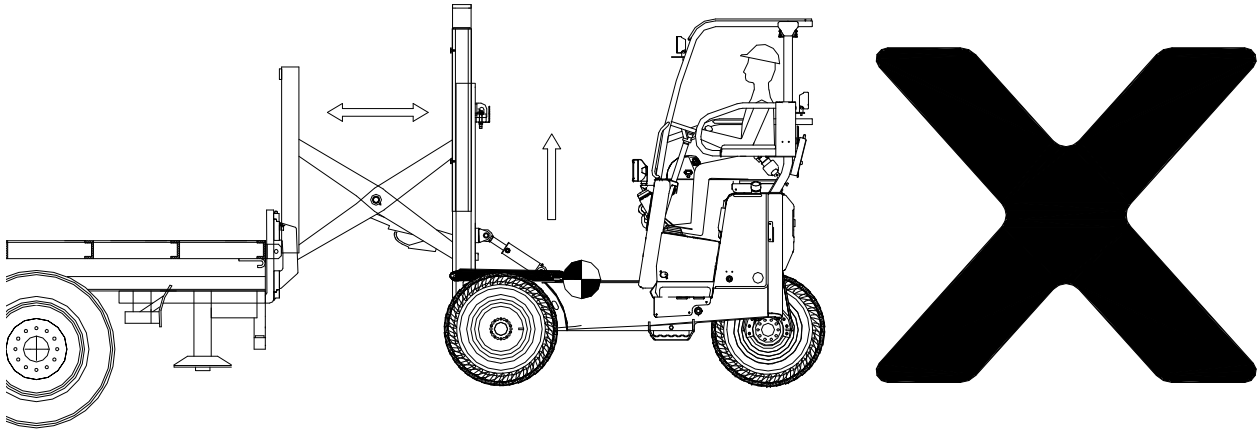
B6. MOUNTING PROCEDURES - LIFT ASSIST AND PANTOGRAPH

Mounting Procedure

When mounting this machine the standard mounting procedure applies, however the Lift Assist and pantograph machine is fitted with a pressure sensor in the rod side of the lift cylinder. This sensor detects when the machine is lifted off the ground during truck mounting. When the sensor detects pressure e.g. the machine is lifted off the ground the pantograph is disabled. This stops the pantograph being used to mount or dismount the machine on the mounting kit.

If the machine is mounted with the pantograph extended the machine will lift however the Pantograph function will be disabled. To continue mounting the machine you must first lower the machine to the ground and then fully retract the pantograph. Continue to mount the machine with the pantograph retracted.

NEVER MOUNT THE MACHINE USING THE PANTOGRAPH, ALWAYS ENSURE THE PANTOGRAPH IS FULLY RETRACTED



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Daily Pre-Shift Inspection Checklist

Note: The additional checks listed in this section are specific to Lift Assist and pantograph and should be used in conjunction with the daily pre-shift inspection checklist on the standard machine, for this refer to section 6 in this operator manual.

Visual Checks

The Hiab Moffett Truck-Mounted Forklift must be parked on a firm level surface in a SAFE ZONE with the keys removed and the park brake engaged. Starting at the operator's station, walk around the forklift and complete the following visual checks.

If defects are identified during the pre-shift visual inspection, notify your supervisor immediately.

1. **Left Stabilizer Friction Pad** - The stabilizer friction pad should not be excessively worn, damaged or missing.
2. **Left Lift Assist Assembly** - Check for damage and bends. Nylon wear strips should not be excessively worn, damaged or missing.
3. **Left Lift Assist Cylinder** - Check for leaks at the fitting and glands (where the cylinder rod extends and retracts). Check for scratches and nicks on the cylinder rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
4. **Pantograph Scissor Assembly** - Check for damage and bends. Check the center pin for wear and cracks.
5. **Pantograph Cylinder** - See #3 Left Lift Assist Cylinder.
6. **Right Stabilizer Friction Pad** - The stabilizer friction pad should not be excessively worn, damaged or missing.
7. **Right Lift Assist Assembly** - See #2 Left Lift Assist Assembly.
8. **Right Lift Assist Cylinder** - See #3 Left Lift Assist Cylinder.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT VISUAL INSPECTION, NOTIFY YOUR SUPERVISOR IMMEDIATELY.

B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Daily Pre-Shift Inspection Checklist (continued)

Operational Checks

Operational inspections are done by starting the engine, operating all controls, and test driving the Hiab Moffett Truck-Mounted Forklift. Never start the Hiab Moffett Truck-Mounted Forklift to perform the operational inspections if the visual inspection indicates an immediate safety hazard. Constantly monitor the gauges, listening for unusual noises, loose parts, fluid leaks and unusual conditions. If a problem is suspected, take the forklift out of service and have it inspected and repaired.

- 1. Pantograph** – Ensure the pantograph extends and retracts smoothly.
- 2. Lift Assist** – Ensure the Lift Assist arms tilt fully forward and rearward.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT OPERATIONAL CHECK, TAKE THE FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.

B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points

M40 and M50 Lite Range

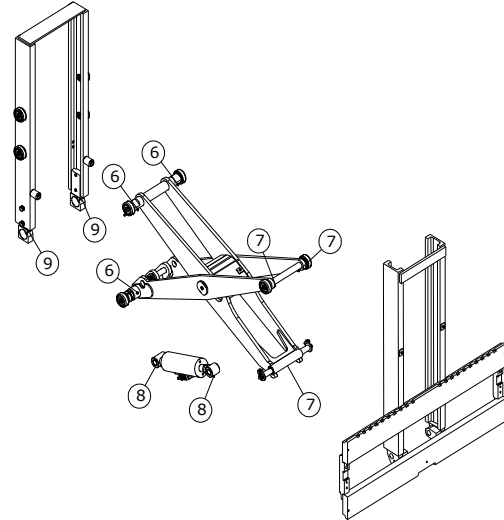
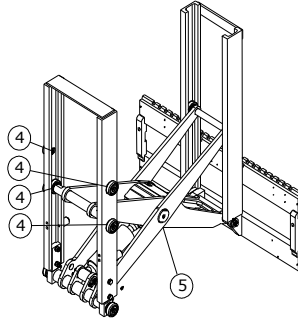
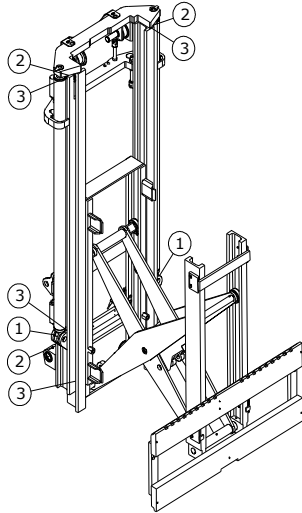
Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

Note: The lubrication/grease points listed in this section are specific to Lift Assist and pantograph. Refer to Section 6 of this operator manual for the standard grease points on the machine.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Lift Cylinders	2	175
2	Mast Outer	4	176
3	Mast Inner	6	177
4	Pantograph Mast	4	178
5	Pantograph Arm Middle Section	1	179
6	Pantograph Arm Section	4	180
7	Pantograph Arm Front Section	3	181
8	Pantograph Cylinder	2	182
9	Bearing Bracket	2	183

B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

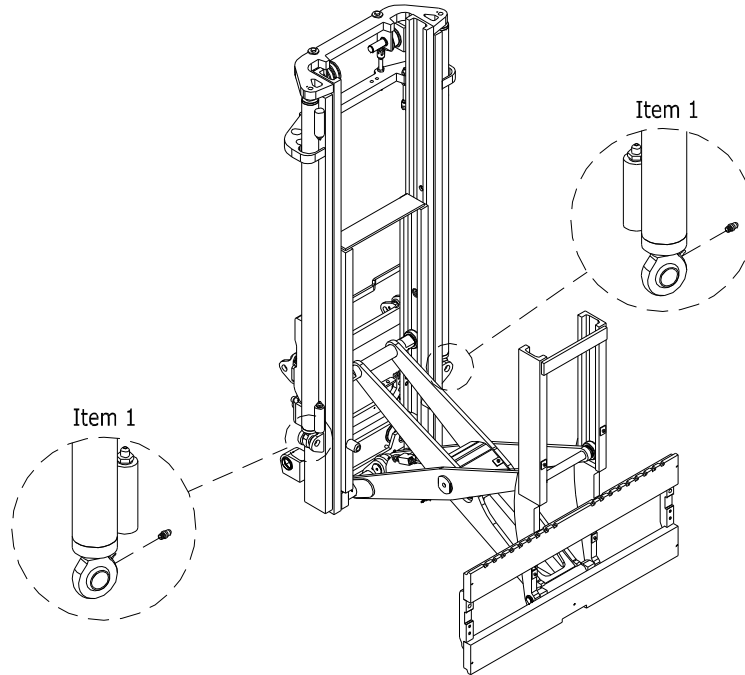
Grease Points (continued)



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

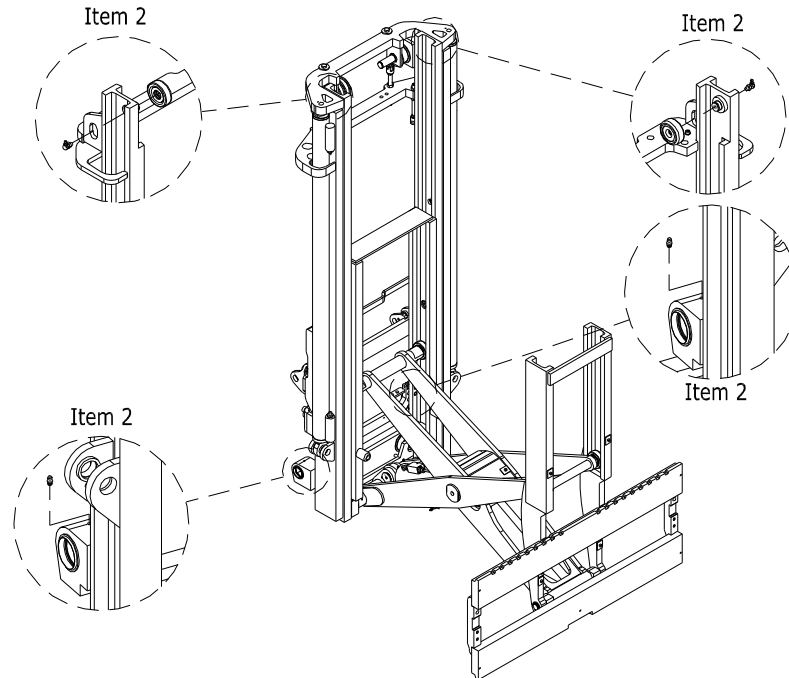
Lift Cylinder Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

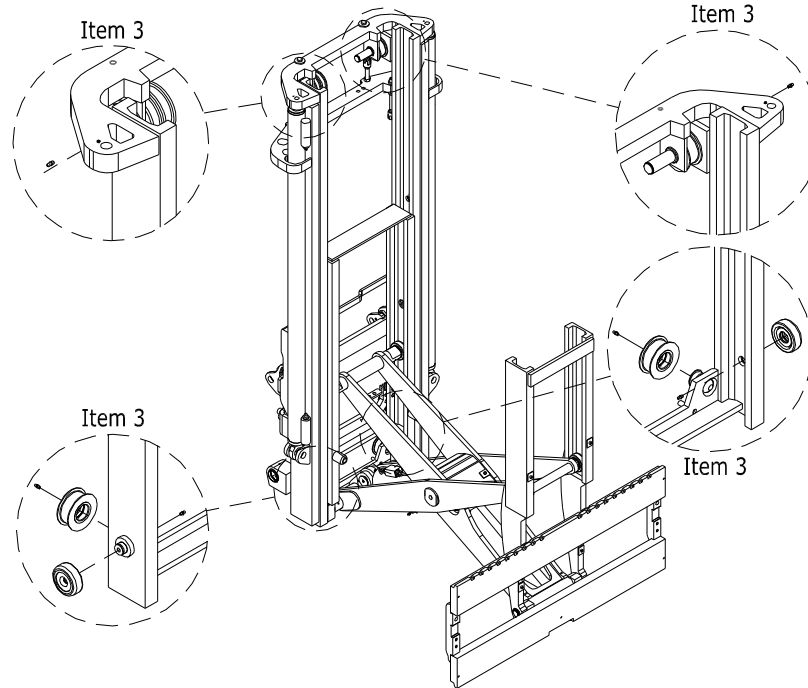
Mast Outer Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

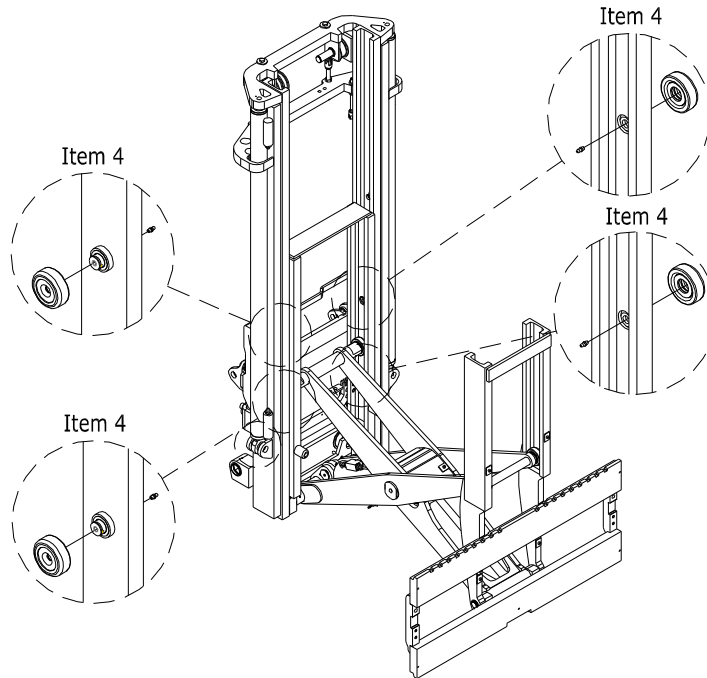
Mast Inner Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

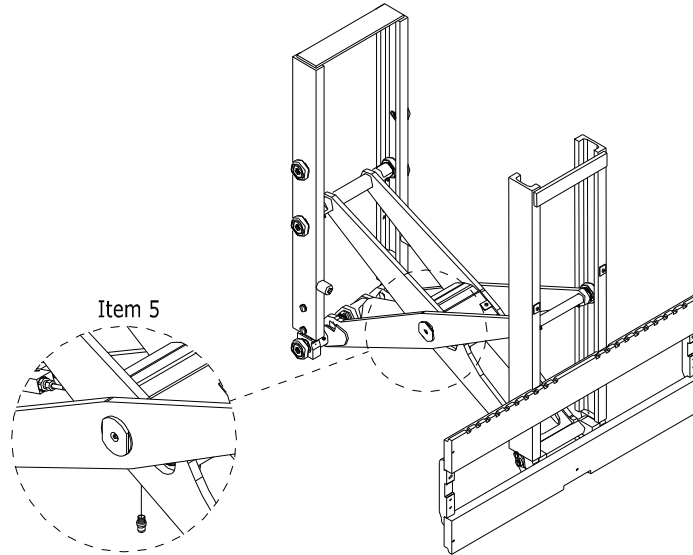
Pantograph Mast Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

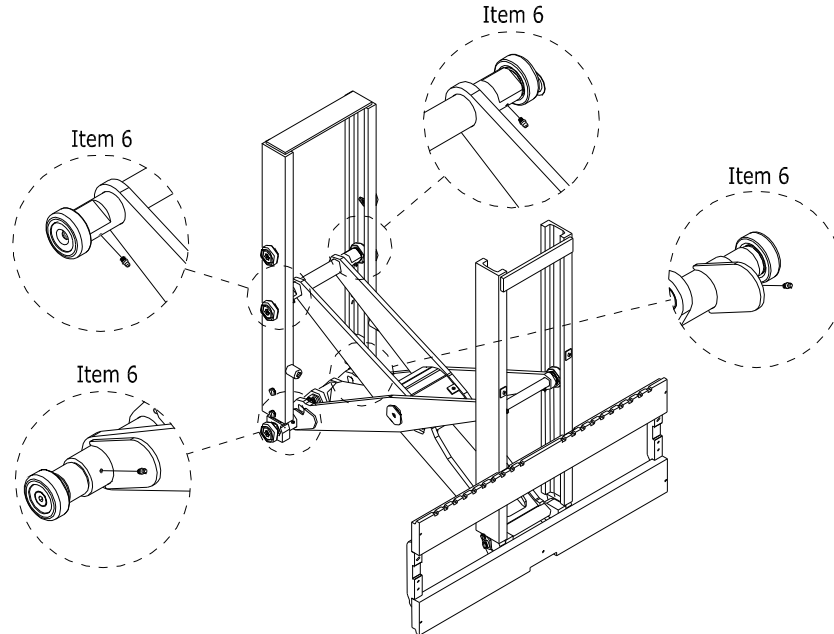
Pantograph Arm Middle Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

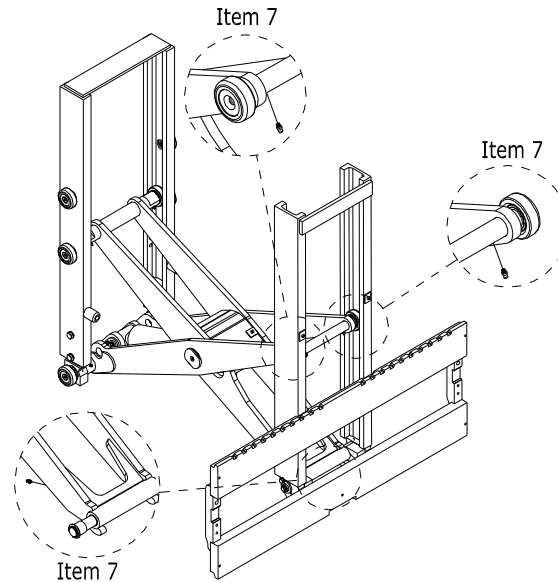
Pantograph Arm Rear Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

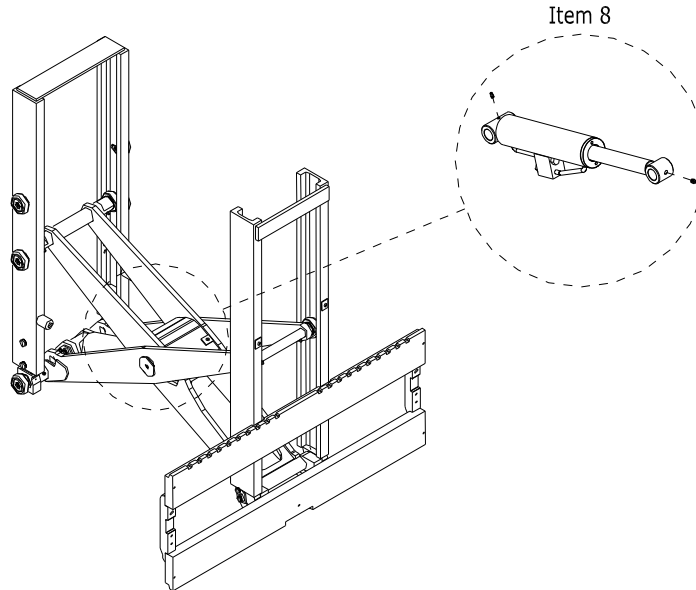
Pantograph Arm Front Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

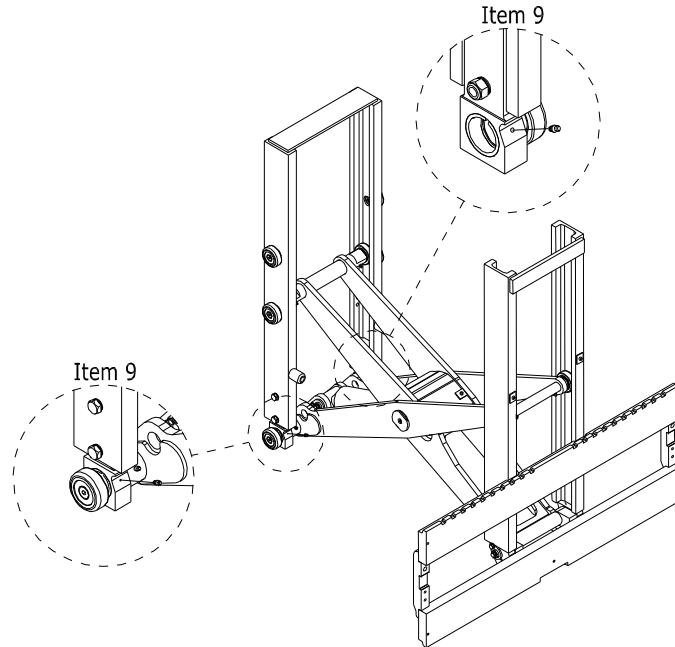
Pantograph Cylinder Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

Bearing Bracket Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

M50 Range

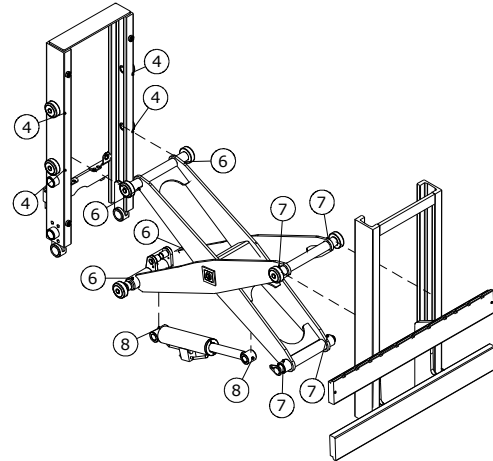
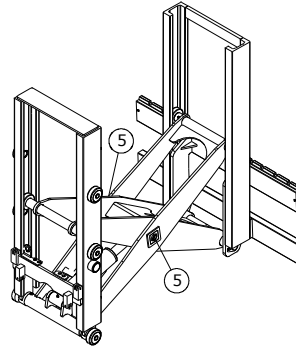
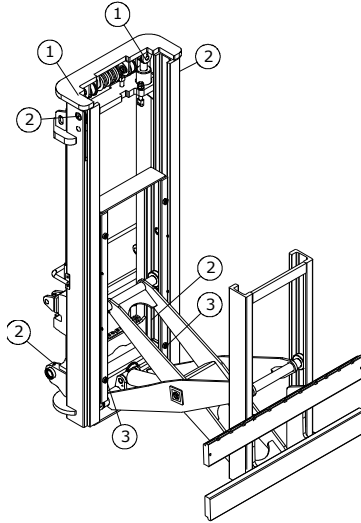
Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

Note: The grease points listed in this section are specific to Lift Assist and pantograph. Refer to Section 6 of this operator manual for the standard grease points on the machine.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Lift Cylinders	2	186
2	Mast Outer	4	187
3	Mast Inner	2	188
4	Pantograph Mast	4	189
5	Pantograph Arm Middle Section	2	190
6	Pantograph Arm Rear Section	4	191
7	Pantograph Arm Front Section	4	192
8	Pantograph Cylinder	2	193

B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

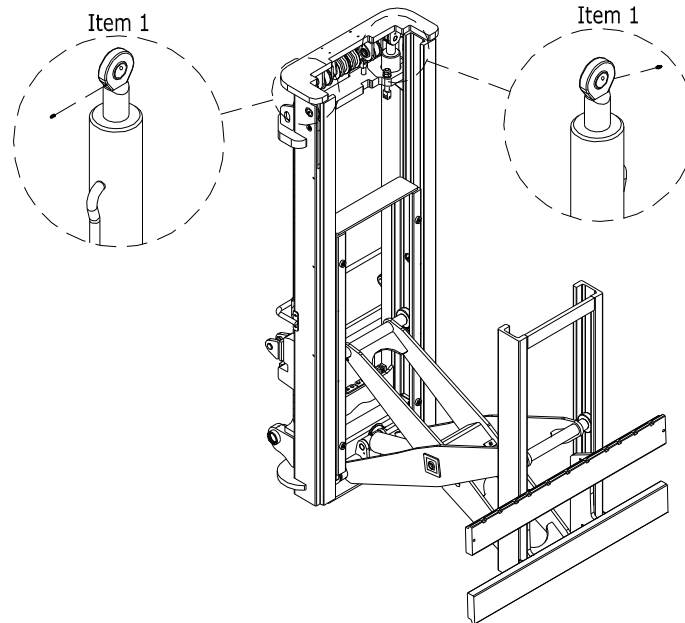
Grease Points (continued)



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

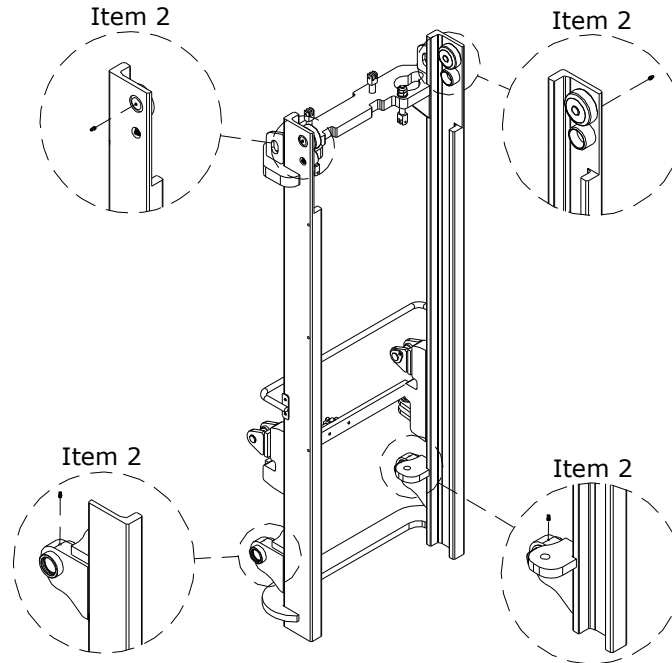
Lift Cylinder Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

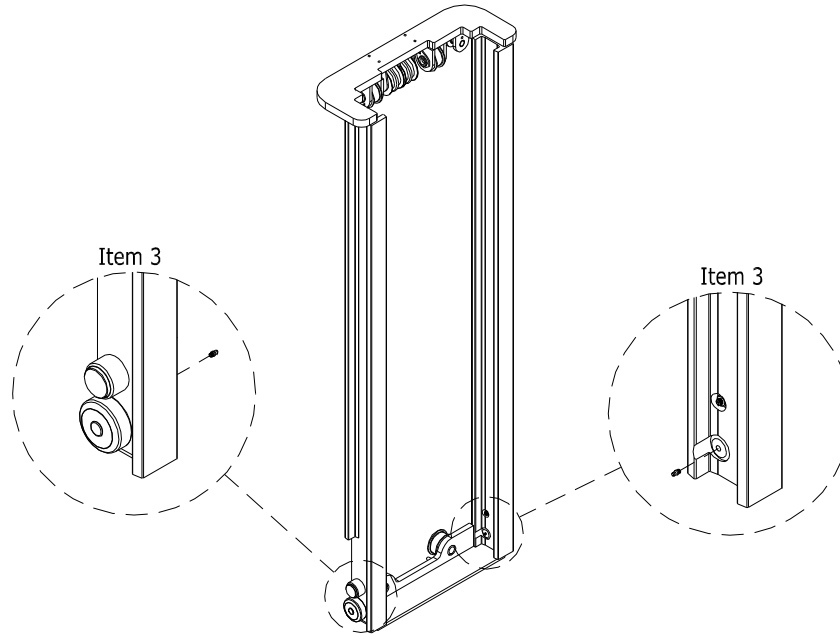
Mast Outer Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

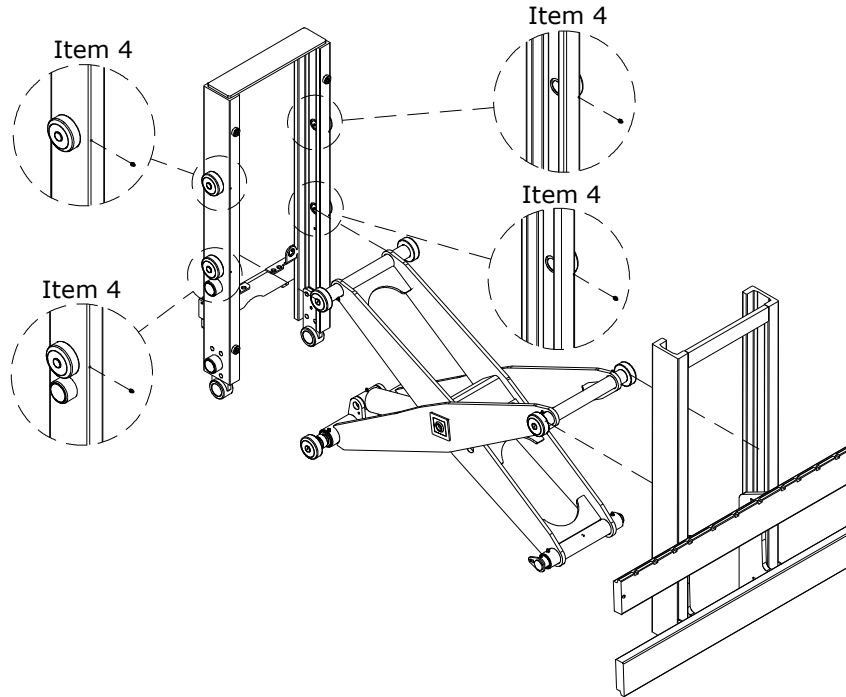
Mast Inner Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

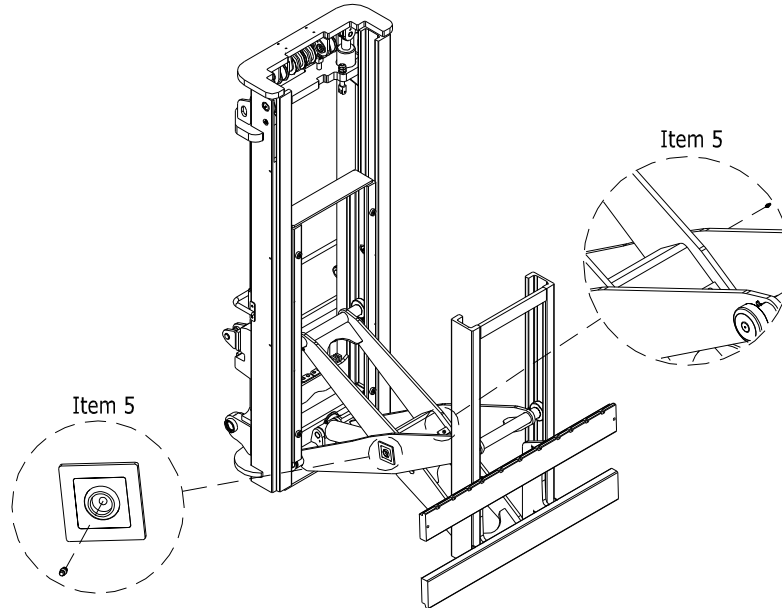
Pantograph Mast Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

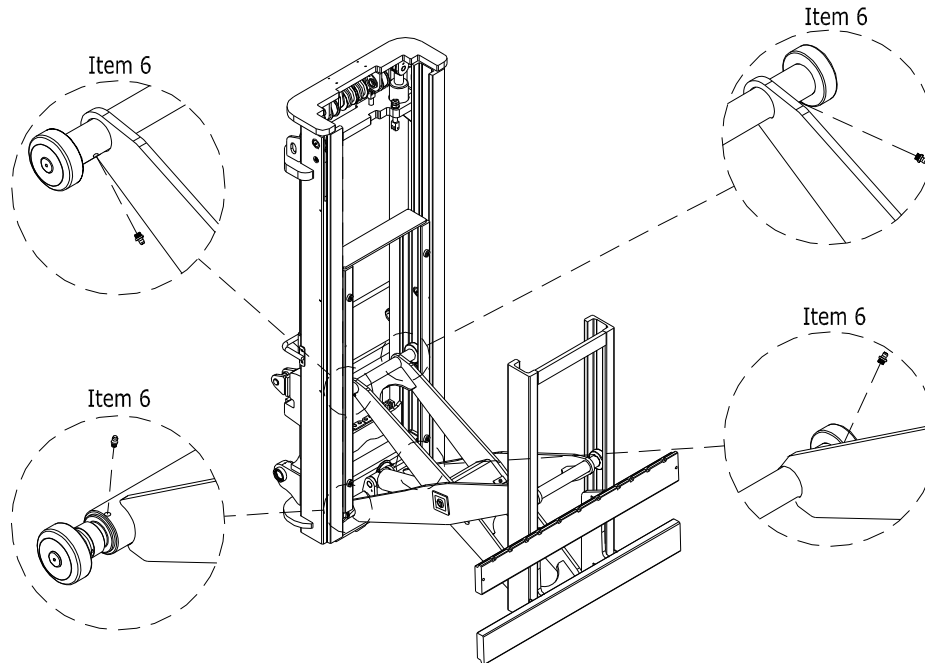
Pantograph Arm Middle Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

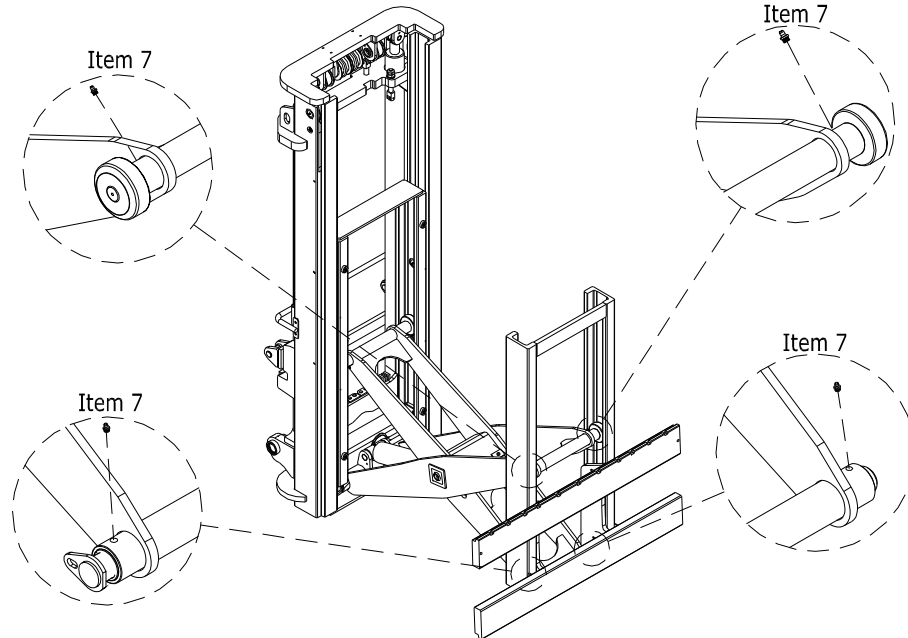
Pantograph Arm Rear Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

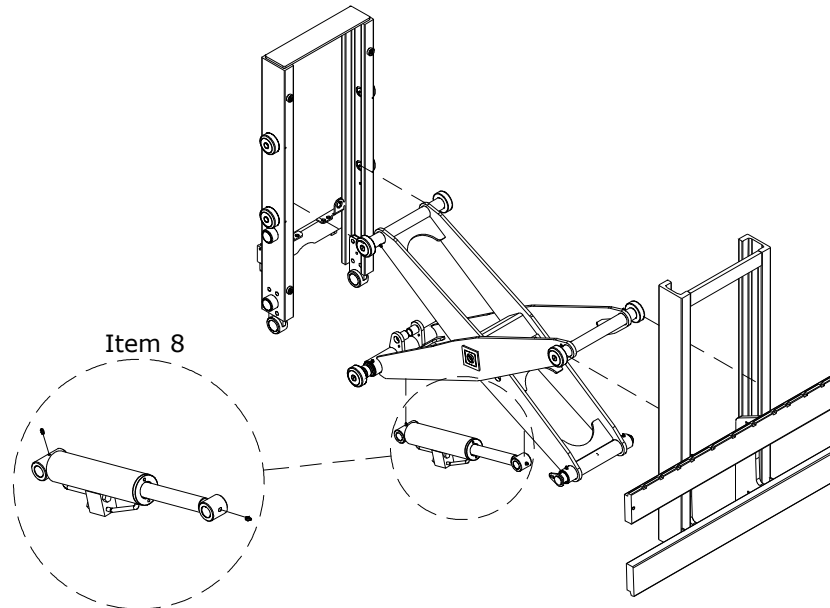
Pantograph Arm Front Section Grease Points



B7. MAINTENANCE - LIFT ASSIST AND PANTOGRAPH

Grease Points (continued)

Pantograph Cylinder Grease Points

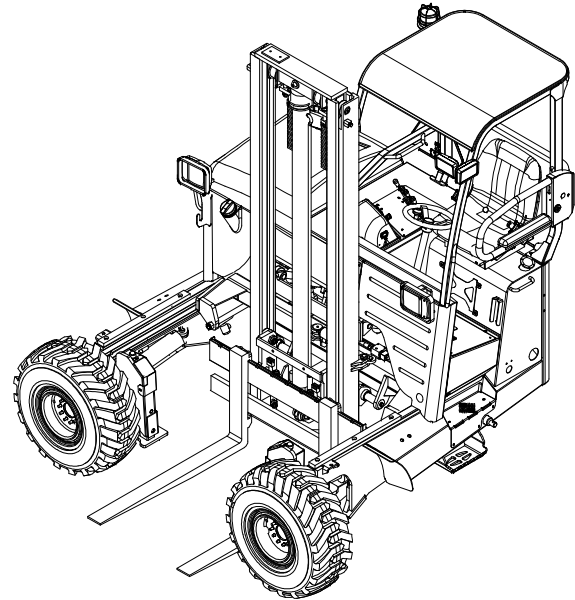




Operator Manual

The Hiab Moffett Truck-Mounted Forklift 4-Way Machine

Note: This section of the manual describes the additional operating instructions for the Hiab Moffett Truck-Mounted Forklift 4-Way unit and should only be used as a supplement to the operator manual.



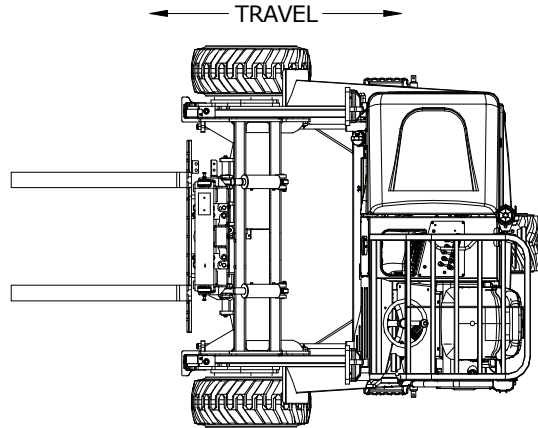
Delivering **Confidence**

C1. OVERVIEW – 4-WAY STEERING

Overview of the 4-Way Steering System

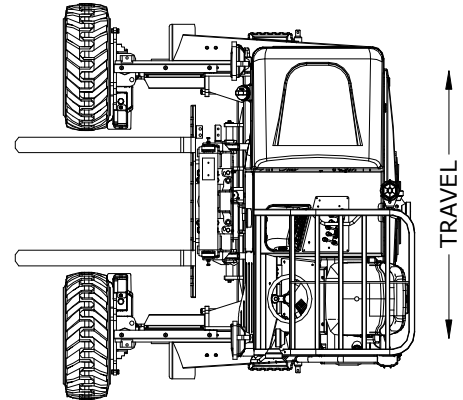
In addition to the conventional travel of forward and backward (2-Way Mode - front wheels locked straight ahead and rear wheel steering), this machine is also fitted with two front steering cylinders.

These front steering cylinders enable the machine to travel sideways (4-Way mode - rear wheel locked to 90° and front wheels steering). When the machine is in 4-Way mode the front steering cylinders are connected in series. The larger right hand cylinder bore side feeds into the left hand cylinder rod side when steering to straight ahead and vice versa when turning to 90°.



FORWARD MODE OF OPERATION

2-WAY MODE



LATERAL MODE OF OPERATION

4-WAY MODE

C2. SAFETY CHECKLIST – 4-WAY STEERING

4-Way Safety

Note: The additional safety checklist in this section is specific to 4-Way. This should be used in conjunction with the safety checklist for the standard machine as outlined at the start of this manual.



DANGER:

Load. Do not lift the load above an object or person when traveling in 4-Way mode. Always carry the load as low as possible on the forks and load supports.



DANGER:

Inclines. Traveling across an incline with or without a load greatly increases the possibility of a tip over.



WARNING:

Traveling. NEVER travel in 4-Way mode without a load on the forks. NEVER change modes when the machine is moving. Always change to normal 2-Way mode when traveling with no load and ensure the mast is fully extended.



WARNING:

Using 4-Way. On 4-Way models:

- Change into and out of 4-Way mode on a firm level surface only.
- Never travel in 4-Way mode without a load.
- Never change modes while the machine is moving
- Always apply the park brake before changing steering modes.



WARNING:

Traveling on Inclines. When on an incline, the combined center of gravity moves downhill. In 4-Way mode the combined center of gravity will be closer to the edge of the stability triangle and the stability will be reduced.



WARNING:

Load. Never travel in the lateral mode with an elevated load. Always keep the load as low as possible.



WARNING:

Using This Manual. This section of the manual describes additional operating instructions for the Hiab Moffett Truck-Mounted Forklift 4-Way unit and should only be used as a supplement to the operator manual.

C2. SAFETY CHECKLIST – 4-WAY STEERING

4-Way Safety (continued)



CAUTION:

Operating the Machine. Do not extend the mast carriage when traveling in 4-Way mode.

Do not select the 4-Way mode when the mast carriage is extended.

Always ensure forks are central and either fully down or above the frame prior to changing into 4-Way.

C3. INTRODUCTION – 4-WAY STEERING

Safety Decals

Note: The additional safety decals listed in this section are specific to 4-Way and should be used in conjunction with the safety decals on the standard machine.

Part Number 517.100.0072

IMPORTANT

TO CHANGE STEERING MODES 2-WAY & 4-WAY:

- ENGAGE PARK BRAKE SWITCH
- SELECT 2W-4W SWITCH POSITION
- PRESS THE MODE BUTTON TO MOVE THE WHEELS.

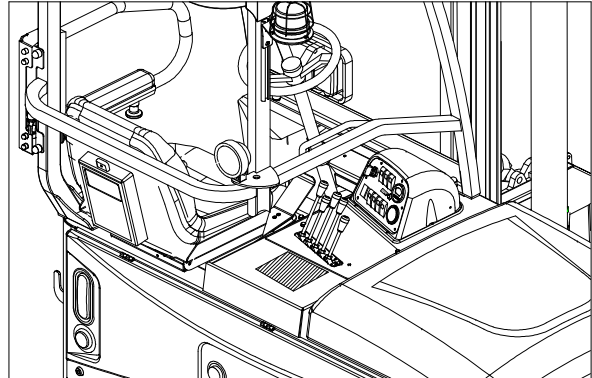
NOTE: IF THE MACHINE IS TO BE USED FOR LONG PERIODS IN 2-WAY MODE THEN THE FOLLOWING PROCEDURE MUST BE CARRIED OUT DAILY:

IN 4WAY TURN THE FRONT WHEELS **FULLY** INWARDS UNTIL THEY REACH THE MECHANICAL STOP AND CONTINUE TO TURN THE STEERING AGAINST THE END STOP FOR APPROX. 20 SECONDS.

THIS PURGES AND RESETS THE 4-WAY SYSTEM ENSURING BOTH HYDRAULIC CYLINDERS ARE SYNCHRONIZED.

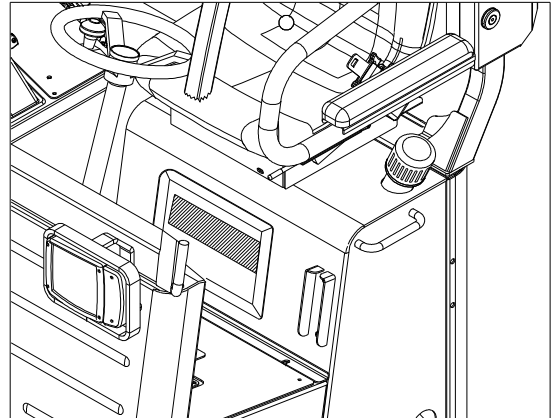
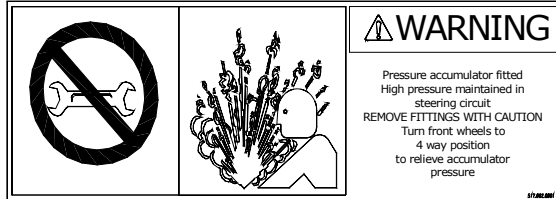
NOTE: IF ANY LOSS OF ALIGNMENT IS NOTICED BETWEEN THE FRONT STEERING CYLINDERS THEN CARRY OUT THE ABOVE PROCEDURE TO RESET THE STEERING CIRCUIT AS REQUIRED.

517.100.0072



C3. INTRODUCTION – 4-WAY STEERING

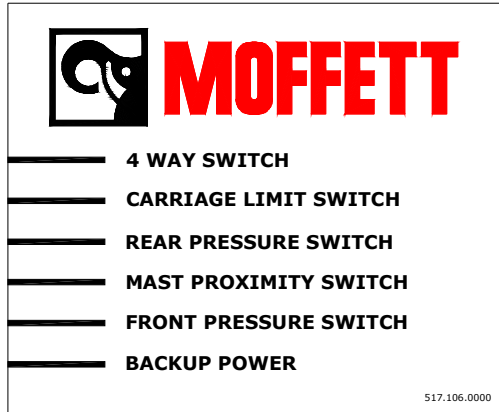
Safety Decals (continued)

Part Number 517.062.0001

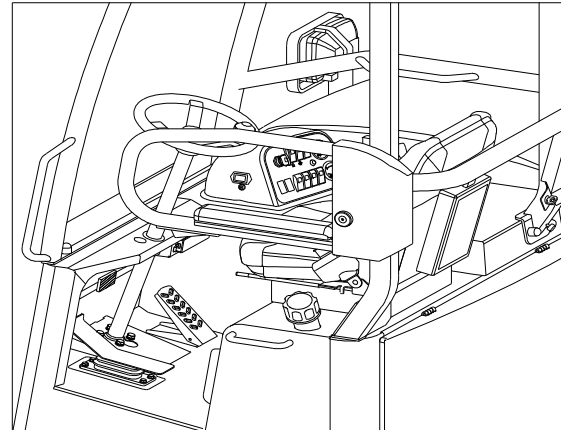
C3. INTRODUCTION – 4-WAY STEERING

Safety Decals (continued)

Part Number 517.106.0000



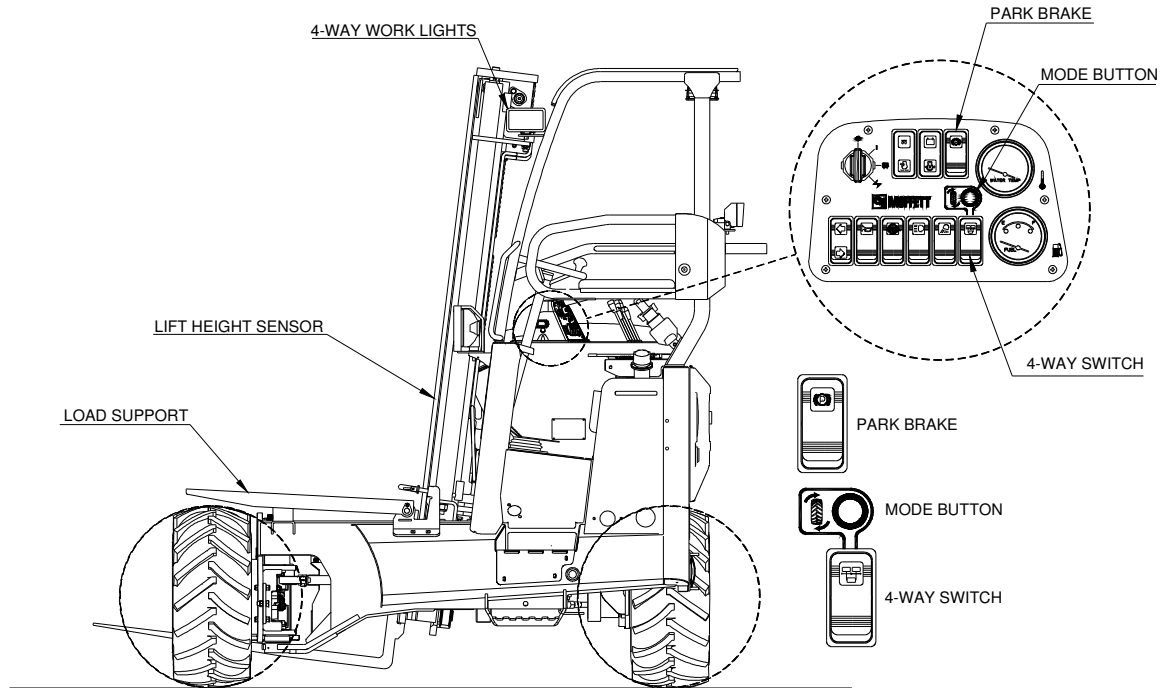
Note: The status of the 4-Way system as well as simple fault finding can be determined by the color of the LED's on the control module.



C3. INTRODUCTION – 4-WAY STEERING

Instruments and Controls

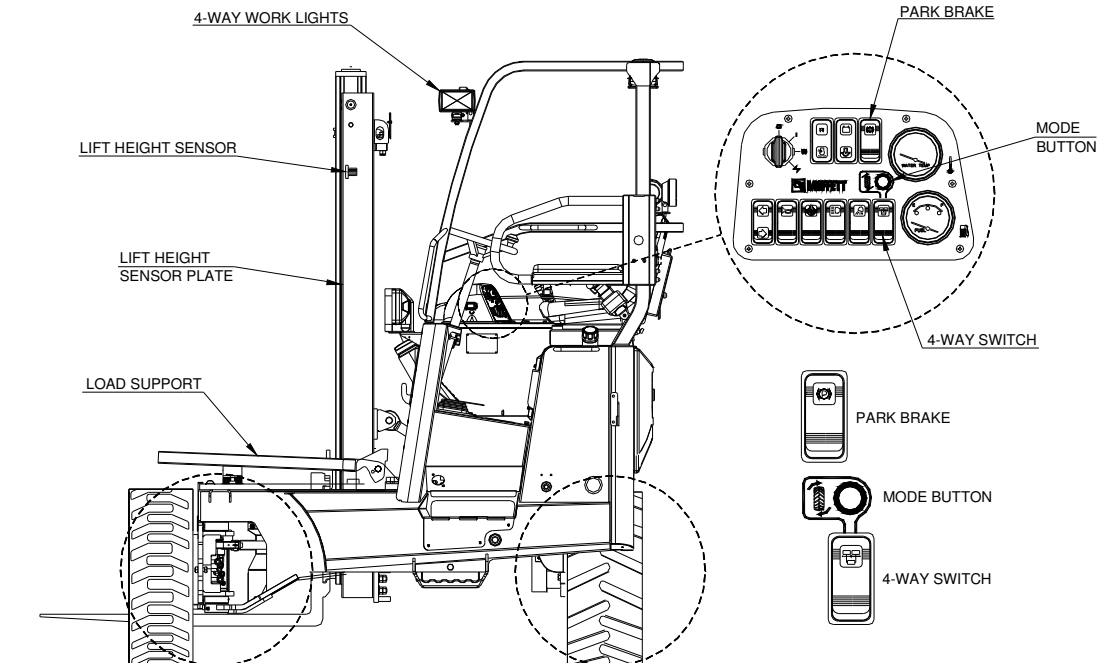
M40 and M50 Lite Range



C3. INTRODUCTION – 4-WAY STEERING

Instruments and Controls (continued)

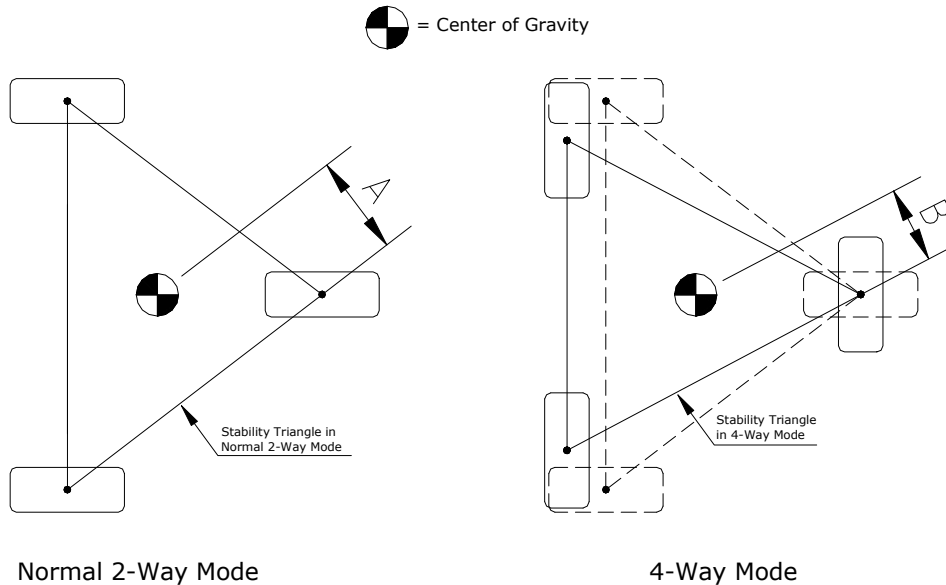
M50 Range



C4. CENTER OF GRAVITY – 4-WAY STEERING

Stability Triangle

The stability of this machine is greatly reduced in lateral 4-Way mode. As per the diagram below, when the front wheels are turned into 4-Way mode the stability triangle is reduced. This means that the center of gravity has less distance to travel before it leaves the stability triangle and the machine could become unstable. Dimensions A and B in the diagram below show how the lateral stability is reduced when in 4-Way mode.



C4. CENTER OF GRAVITY – 4-WAY STEERING

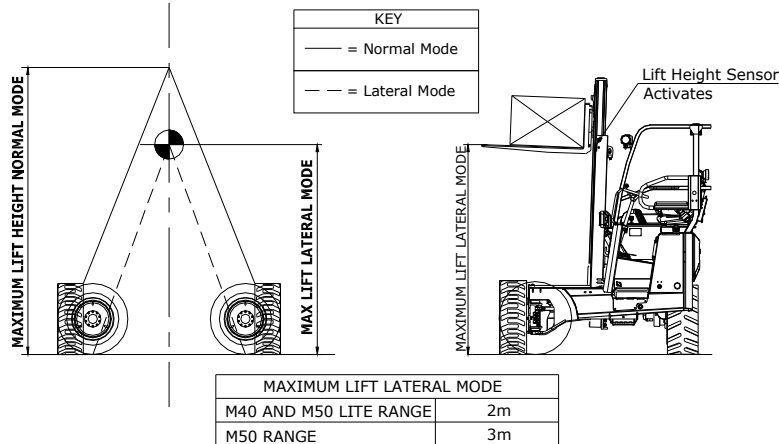
Lift Height Restriction

Note: The width of the stability triangle is reduced when the lateral (4-Way) mode is engaged. This creates a narrower stability pyramid compared to when the forklift is in normal (2-Way) mode, causing the forklift to become less stable laterally as the load is elevated. This is why the lift height is restricted to 3m in the M50 range and 2m in the M40 and M50 Lite range, to maintain an optimum level of lateral stability.



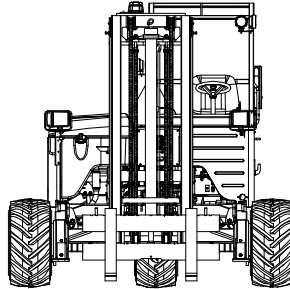
WARNING:

Traveling. NEVER traveling in 4-Way mode without a load on the forks. NEVER change modes when the machine is moving. Always change to normal 2-Way mode when traveling with no load and ensure the mast is fully extended.

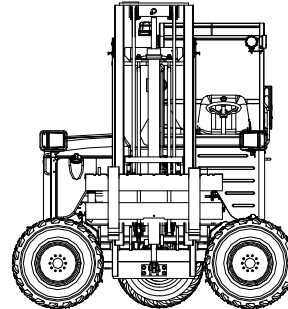


C5. OPERATING PROCEDURES – 4-WAY STEERING

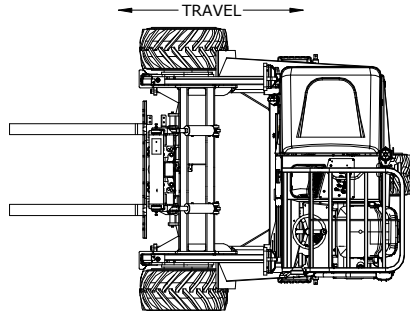
Operating Procedures



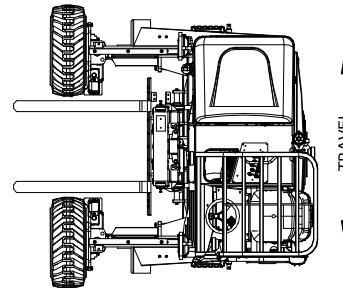
NORMAL 2-WAY MODE



LATERAL 4-WAY MODE



FORWARD MODE OF OPERATION



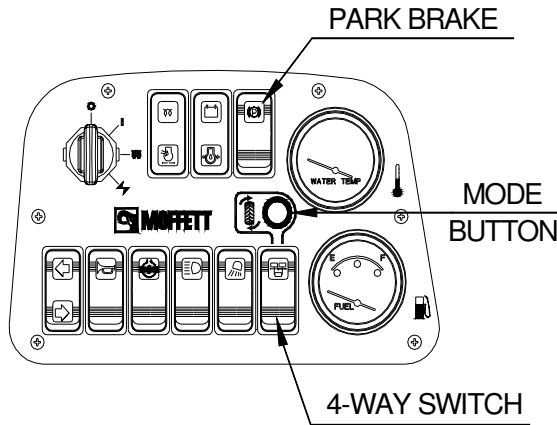
LATERAL MODE OF OPERATION

C5. OPERATING PROCEDURES – 4-WAY STEERING

Changing Steering Modes

All machines can be changed from 2-Way to 4-Way steering mode by following the sequence detailed in this section of the operator manual. The machine can be changed semi automatically using the mode button or manually using the steering wheel.

Mode Button Operation



Note: The mode button will only work if the machine is stationary and the electric park brake is applied as the park brake interlocks the function of the mode button.

A1. Changing from 2-Way to 4-Way

1. Ensure the machine is stationary on level ground
2. Ensure the mast carriage is fully retracted and the forks are on the ground.
3. Apply the electric park brake.
4. Change the 4-Way switch to the 4-Way position
5. Push the red MODE button until the rear wheel moves to the 90° position.
6. The system will automatically change oil to the front wheels.
7. Continue to press the red MODE button until the front wheels are at 90°.
8. Release the park brake.
9. The machine is now in 4-Way Mode.

A2. Changing from 4-Way to 2-Way

1. Ensure the machine is stationary on level ground.
2. Ensure the mast carriage is fully retracted and the forks are on the ground.
3. Apply the electric park brake.
4. Change the 4-Way switch to the 2-Way position.
5. Push the red MODE button until the front wheels come to the straight ahead position.
6. The system will automatically change oil to the rear wheel.
7. Continue to push the red MODE button until the rear wheel is in the straight ahead position.
8. Release the park brake.
9. The machine is now in 2-Way Mode.

C5. OPERATING PROCEDURES – 4-WAY STEERING

Changing Steering Modes (continued)

Manual Operation

B1. Changing from 2-Way to 4-Way

1. Ensure the machine is stationary on level ground.
2. Ensure the mast carriage is fully retracted and the forks are on the ground.
3. Apply the electric park brake.
4. Steer the rear wheel to the 90° position using the steering wheel.
5. Change the 4-Way switch to the 4-Way position.
6. Steer the front wheels to 90° using the steering wheel.
7. Release the park brake.
8. The machine is now in 4-Way Mode.

B2. Changing from 4-Way to 2-Way

1. Ensure the machine is stationary on level ground.
2. Ensure the mast carriage is fully retracted and the forks are on the ground.
3. Apply the electric park brake.
4. Steer the front wheels to the straight ahead position using the steering wheel.
5. Change the 4-Way switch to the 2-Way position.
6. Steer the rear wheel to the straight ahead position using the steering wheel.
7. Release the park brake.
8. The machine is now in 2-Way Mode.

Note: Always change steering modes using minimum engine revs, this ensures the pressures raised in the rear steering ram are kept to a minimum.

If changing steering modes in extremely deep mud or severe ground conditions, higher than normal steering pressures could be generated in the steering lines. These higher pressures may trigger the pressure switches in the automatic system before the steering wheels have fully reached their stops. If this occurs, change back to the previous steering mode and manually steer the wheels fully to the stops before switching to the desired steering mode. If the rear arm will not steer manually, then the ground conditions are too severe to change steering modes. The operator needs to find improved ground conditions before changing steering modes.

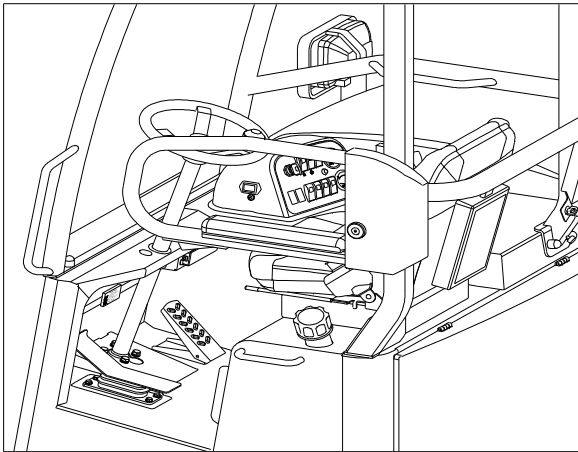
If the machine is used in very cold conditions always ensure that the machine is warmed up fully before attempting to change steering modes as the cold oil will also create higher than normal steering pressures.

C5. OPERATING PROCEDURES – 4-WAY STEERING

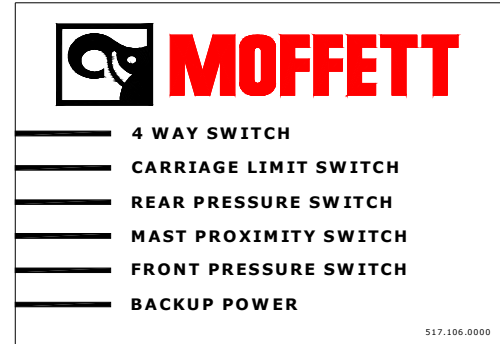
Instruments and Controls

The relays which control the functions of the 4-Way steering system are also linked to 6 LED's which can be seen on the control module located under the front lip of the pedal enclosure.

The function and color of these LED's is outlined in this section of the operator manual and they can be used to check the status of the 4-Way system as well as simple fault finding.



Control Module LED Decal



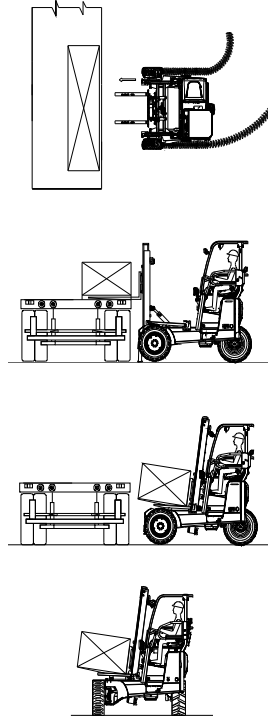
LED Function and Color

- A - Green if the 4-Way switch is in the 4-Way position.
- B - Green if the carriage is back ready for mode change.
- C - Green if the rear pressure switch is activated.
- D - Green if the mast height is below the height limit.
- E - Green if the front pressure switch is activated.
- F - Green if the power is ON to the control module.

If any of the LED's do not light up green as outlined above then refer to Section C8. Special Procedures.

C5. OPERATING PROCEDURES – 4-WAY STEERING

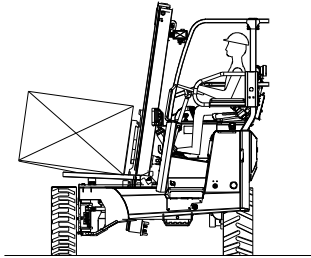
Lifting a Wide Load



1. Approach the trailer in 2-Way mode with the mast fully extended.
2. Make sure the load to be lifted is stable and secure.
3. Check the weight and load center of the load to be lifted. If the weight is not marked or shown on the load, check the weight with your supervisor or have it weighed. If it is too heavy, split the load and restack it.
4. Center the forks as wide as possible to suit the load.
5. Fold down the load supports. (While pushing the load support back, open the anti-lose fastener and lower the load rest to the machine frame).
6. Align the forks with the center of the load, approach it squarely and drive into the load until the forks are fully engaged.
7. Check that the ground surface is strong enough to support the stabilizers.
8. Lower the stabilizers fully.
9. Raise the load to clear the truck/trailer bed.
10. Tilt the mast rearward to secure the load.
11. Side-shift the mast to the center position.
12. Retract the mast fully to bring the load above the front wheels.
13. Raise the stabilizers fully.
14. Back away slowly to ensure the load clears the truck/trailer bed.
15. Apply the parking brake.
16. Lower the load onto the load supports, keeping the forks in contact with the bottom of the load.
17. Ensure the machine is on a firm level surface.
18. Change the machine into 4-Way mode.
19. Disengage the parking brake. The machine can now be driven in 4-way mode.
20. Slowly drive away, looking in the direction of travel.

C5. OPERATING PROCEDURES – 4-WAY STEERING

Traveling With a Wide Load



1. Carry the load as low as possible above the frame of the machine.
2. Keep the mast retracted fully.
3. Tilt the mast back.
4. Do not side-shift the load while traveling or turning.
5. Use caution when starting or stopping. Drive slowly and avoid sudden movements.
6. Always look in the direction of travel.

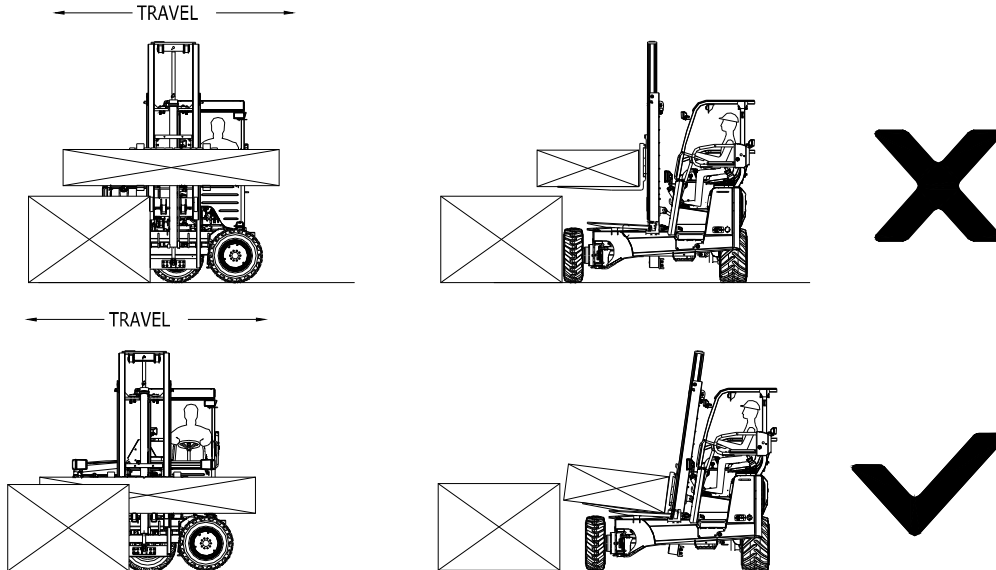
C5. OPERATING PROCEDURES – 4-WAY STEERING

Traveling With a Wide Load (continued)



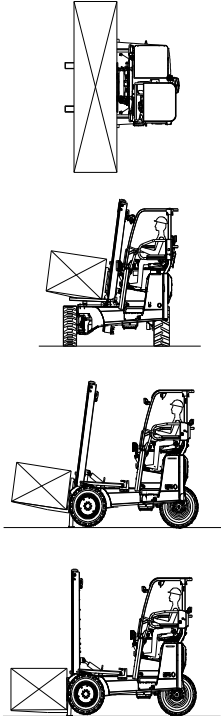
DANGER:

Load. Do not lift the load above an object or person when traveling in 4-Way mode. Always carry the load as low as possible on the forks and load supports.



C5. OPERATING PROCEDURES – 4-WAY STEERING

Placing a Wide Load



WARNING:

Traveling. NEVER travel in 4-Way mode without a load on the forks. NEVER change modes when the machine is moving. Always change to normal 2-Way mode when traveling with no load and ensure the mast is fully extended.

1. First ensure the placement area is a firm level surface.
2. Check that the area is clear of debris.
3. Approach the placement area squarely.
4. Apply the parking brake.
5. Raise the load until it clears the load supports.
6. Change to 2-Way Mode.
7. Check that the ground surface is strong enough to support the stabilizers.
8. Lower the stabilizers fully.
9. Extend the mast fully to clear the frame, wheels and load supports.
10. Lower the forks to the ground to deposit the load.
11. Tilt the mast forward slightly to deposit the load.
12. Raise the stabilizers fully.
13. Disengage the parking brake.
14. Check that the rear wheel is in the straight ahead position.
15. Back up carefully.
16. Slowly drive away looking in the direction of travel, keeping the mast fully extended.

C5. OPERATING PROCEDURES – 4-WAY STEERING

Operating on Inclines and Unusual Ground Surfaces



DANGER:

Inclines. Traveling across an incline with or without a load greatly increases the possibility of a tip over.

- Do not travel in 4-Way mode without a load.
- Do not travel across an incline in 4-Way mode.
- Always approach an incline to the left and travel up and down the incline. Drive up an incline to the left. Drive down an incline to the right.
- Keep the operator's compartment facing uphill.
- Do not turn on an incline
- Never stop or start suddenly.
- Operate all controls smoothly.
- Watch out for potholes or other obstacles that could affect the stability of the machine.
- Drive slowly over rough terrain.
- Where necessary, engage the diff-lock and travel slowly for additional traction.
- Always take great care when transporting wide loads on any incline. Carry the load on the load supports keeping the forks in contact with the bottom of the load.
- Make allowances for the reduction in both stability and lift capacity when operating on inclines.

- Remember that a machine in 4-Way mode is less stable than in normal mode.
- Do not attempt to drive up or down an incline in 4-Way mode just because you have driven up or reversed down it in normal mode.
- Only use 4-Way mode when it is not otherwise possible to carry a wide load.

C5. OPERATING PROCEDURES – 4-WAY STEERING

Operating on Inclines and Unusual Ground Surfaces (continued)



WARNING:

Using 4-Way. On 4-Way models:

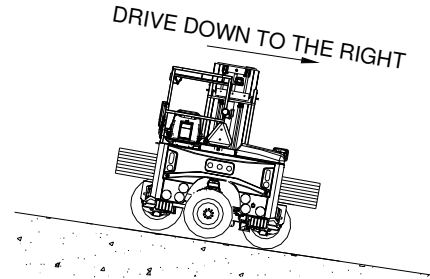
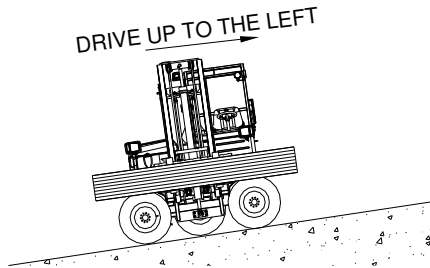
- Change into and out of 4-Way mode on a firm level surface only.
- Never travel in 4-Way mode without a load.
- Never change modes while the machine is moving
- Always apply the park brake before changing steering modes.



WARNING:

Traveling on Inclines. When on an incline, the combined center of gravity moves downhill. In 4-Way mode the combined center of gravity will be closer to the edge of the stability triangle and the stability will be reduced.

**(Maximum Gradability = 30%
In Normal Mode)**



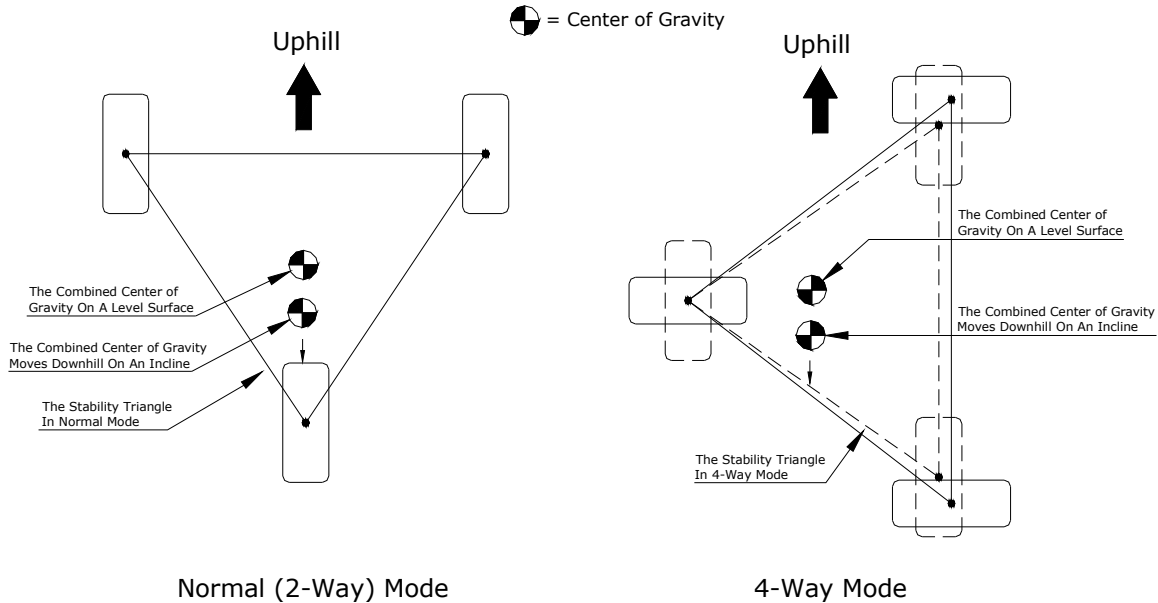
4-Way Mode - Mast Fully Retracted - With Load

**(Maximum Gradability = 15%
In 4-Way Mode)**

C5. OPERATING PROCEDURES – 4-WAY STEERING

Operating on Inclines and Unusual Ground Surfaces (continued)

Note: When traveling on an incline the combined center of gravity moves downhill. In 4-Way mode the combined center of gravity will be much closer to the edge of the stability triangle as the machine is traveling sideways. This means the stability of the machine will be reduced.



C5. OPERATING PROCEDURES – 4-WAY STEERING

Load Supports

The 4-Way machine is fitted with load supports, these are used in conjunction with wide loads to minimize load deflection and increase load stability.

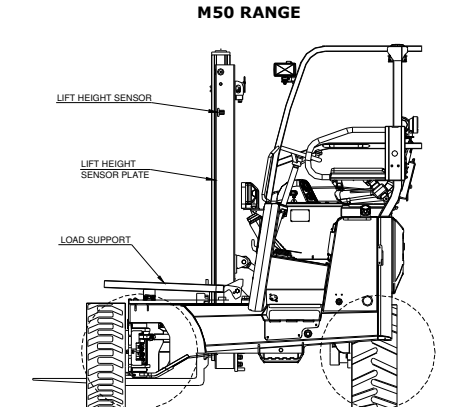
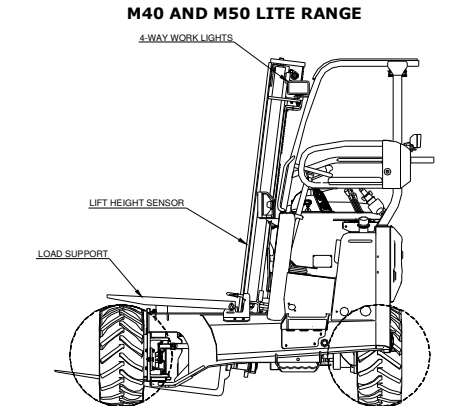


WARNING:

Load. Never travel in the lateral mode with an elevated load. Always keep the load as low as possible.

Never travel in Lateral (4-Way) mode with no load on the forklift.

Note: Always fold up the load supports before transporting the machine.



C5. OPERATING PROCEDURES – 4-WAY STEERING

Points to Remember

Ensure you are on a firm and level surface before engaging 4-Way mode.

Only use 4-Way mode where it is not possible to otherwise carry a wide load.

Never travel in 4-Way mode without a load.

Always carry the load on the forks AND the load supports.

Never start or stop suddenly. Operate all controls smoothly.

Watch out for potholes or other obstacles which could affect the stability of the forklift.

Drive slowly over rough terrain.

Where necessary, engage the diff-lock and travel slowly for additional traction.

Never travel in 4-Way mode with an elevated load, always keep load as low as possible.

Never turn on an incline.

Always keep the operator's compartment facing uphill when traveling on inclines.

Do not attempt to drive up or down an incline in 4-Way mode just because you have driven up or reversed down it previously in normal mode.

Always return to the normal mode (2-Way) before placing a load.

Before Selecting 4-Way Mode

1. Ensure the machine is stationary.
2. Ensure the mast carriage is fully retracted.
3. Ensure the stabilizers are fully raised.
4. Ensure the load is above the height of the wheels.

While in 4-Way Mode

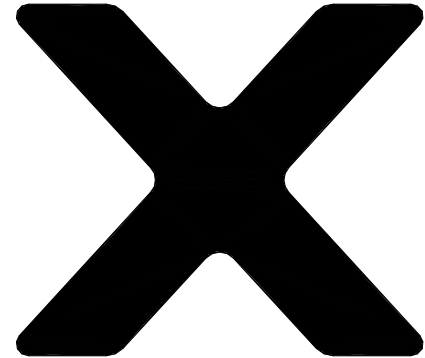
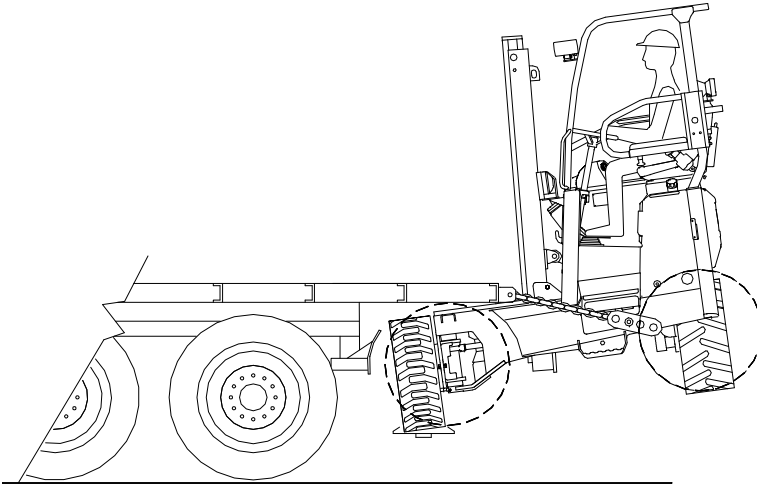
1. Do not extend the mast carriage.
2. Do not use the stabilizing legs.
3. Transport the load as low as possible above the wheels.
4. Drive the machine slowly and as smoothly as possible.
5. The light on the 4-Way switch signifies that you are in 4-Way mode, as well as the 4-Way work lights and beeper being activated.

C6. MOUNTING PROCEDURE – 4-WAY STEERING

Mounting Procedure

Mount as per the standard machine (See section 5)

Note: During the truck mounting/dismounting sequence, never engage 4-Way mode as serious damage will occur to the mounting kit and the machine.



C7. MAINTENANCE – 4-WAY STEERING

Daily Maintenance

In addition to the daily maintenance inspection that is listed in the standard operator manual, some additional daily checks should be carried out on the 4-Way machine.

Before you begin your work day take time to check your machine and make certain that the front steer system is in good operational condition.

Please carry out the following procedure:

- On the series steer circuit, turn the wheels fully inwards to the 4-Way position until they reach the mechanical stop.
- Continue to turn the steering against the end stop for approximately 20 seconds.

This purges and resets the 4-Way system ensuring both hydraulic cylinders are synchronized.

Note: If the machine is to be used continuously then carry out the above sequence at one hour intervals of operation.

Alternatively if any loss of alignment is noticed between the front two steering cylinders, carry out the above procedure to reset the steering circuit.

C7. MAINTENANCE – 4-WAY STEERING

Daily Pre-Shift Inspection Checklist

Note: The additional checks listed in this section are specific to 4-Way and should be used in conjunction with the daily pre-shift inspection checklist on the standard machine, for this refer to section 6 in this operator manual.

Visual Checks

The Hiab Moffett Truck-Mounted Forklift must be parked on a firm level surface in a SAFE ZONE with the keys removed and the park brake engaged. Starting at the operator's station, walk around the forklift and complete the following visual checks.

If defects are identified during the pre-shift visual inspection, notify your supervisor immediately.

1. **Left Load Support** – Ensure that the load support folds up and down smoothly. It should latch or lock positively when folded up.
2. **Left Steering Cylinder** – Check for leaks at the fittings and glands (where the cylinder rod extends and retracts). Check for scratches and nicks on the rod. Check the mounts for cracks on either end of the cylinder. Check for missing or loose bolts on the cylinder retaining pins at either end of the cylinder.
3. **Lift Height Sensor** – Check that the sensor, sensor plate and wiring are not missing. Ensure there is no damage to the sensor, sensor plate and wiring.
4. **Right Load Support** – See #1 Left Load Support.
5. **Right Steering Cylinder** – See #2 Left Steering Cylinder.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT VISUAL INSPECTION, NOTIFY YOUR SUPERVISOR IMMEDIATELY.

C7. MAINTENANCE – 4-WAY STEERING

Daily Pre-Shift Inspection Checklist (continued)

Operational Checks

Operational inspections are done by starting the engine, operating all controls, and test driving the Hiab Moffett Truck-Mounted Forklift. Never start the Hiab Moffett Truck-Mounted Forklift to perform the operational inspections if the visual inspection indicates an immediate safety hazard. Constantly monitor the gauges, listening for unusual noises, loose parts, fluid leaks and unusual conditions. If a problem is suspected, take the forklift out of service and have it inspected and repaired.

1. **Engage Lateral Mode** – Ensure the front and rear wheels turn smoothly into the lateral travel position.
2. **Lift Height Sensor** – Raise the mast and ensure it stops at the lift height sensor, then lower it until the forks are just above the top of the frame.
3. **Lateral Drive Test** – Drive slowly and cautiously a few feet right and left to ensure the machine moves and stops smoothly. Ensure the machine can only operate in lateral mode when the mast carriage is fully retracted.
4. **Disengage Lateral Mode** – Ensure the front and rear wheels turn smoothly into the normal travel position.

NOTE: IF DEFECTS ARE IDENTIFIED DURING THE PRE-SHIFT OPERATIONAL CHECK, TAKE THE FORKLIFT OUT OF SERVICE, NOTIFY YOUR SUPERVISOR AND HAVE IT INSPECTED AND REPAIRED.
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C7. MAINTENANCE – 4-WAY STEERING

Grease Points

Note: Before greasing any points on the machine remove any hardened grease that may prevent the flow of lubricant. Each item should be moved after the initial application of grease and greased again to ensure complete lubrication at each point.

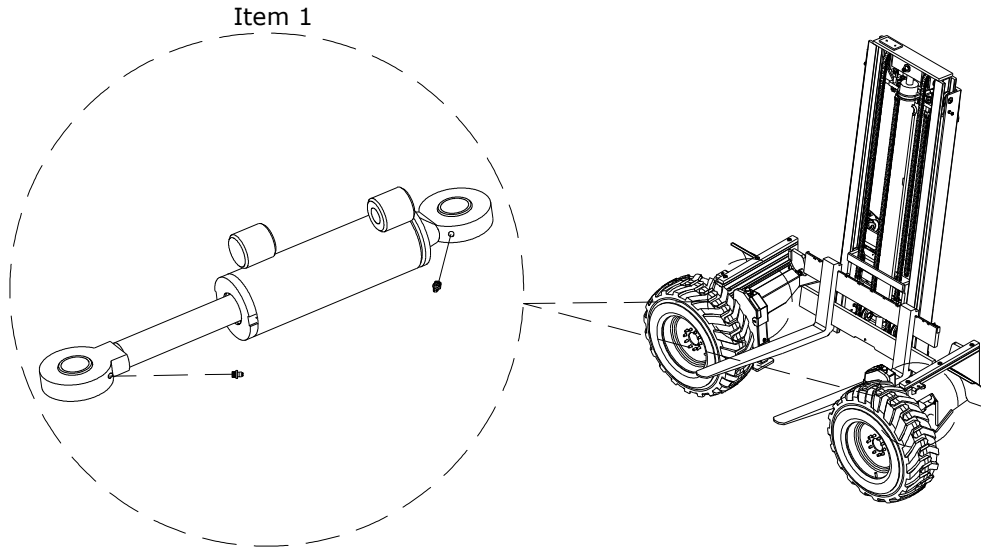
Note: The lubrication/grease points listed in this section are specific to 4-Way. Refer to Section 6 of this operator manual for the standard grease points on the machine.

ITEM	DESCRIPTION	No. OF POINTS	PAGE NUMBER
1	Front steering cylinders	4	220
2	Front steering swivels	4	221
3	Nylon wear pad	2	222

C7. MAINTENANCE – 4-WAY STEERING

Grease Points (continued)

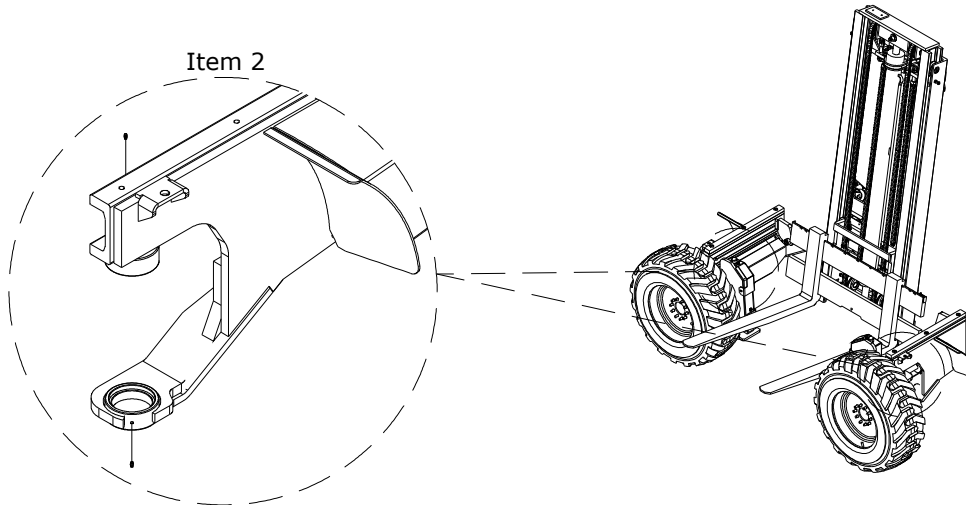
Front Steering Cylinders Grease Points



C7. MAINTENANCE – 4-WAY STEERING

Grease Points (continued)

Front Steering Swivels Grease Points



C7. MAINTENANCE – 4-WAY STEERING

Grease Points (continued)

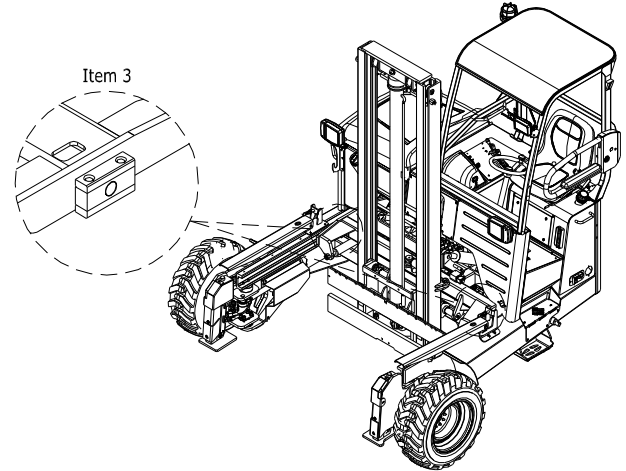
Nylon Wear Pad

In order to ensure that the carriage nylon blocks are reliable and have the optimum performance, additional maintenance is required during the initial bedding in period and during periods of infrequent use of the Hiab Moffett Truck-Mounted Forklift.

The Hiab Moffett Truck-Mounted Forklift is supplied with a stabilizing kit which includes lubricant for this purpose. Cargotec Ireland recommends the use of Maxol Super Grease.

The lubricant must be applied to the entire length of the channel that the nylon blocks slide in, once per week. This should be done after using the machine to give the grease time to adhere to the channel section. This must be done until the nylon block has worn through the layer of paint and the metal surface of the channel on which the blocks slide appears polished.

Corrosion or a lack of lubrication on the steel channels may cause the nylon blocks to stick or judder when lifting a load or mounting the Hiab Moffett Truck-Mounted Forklift. In situations where this occurs the frequency of lubrication must be increased to prevent damage to the nylon blocks or the machine structure.



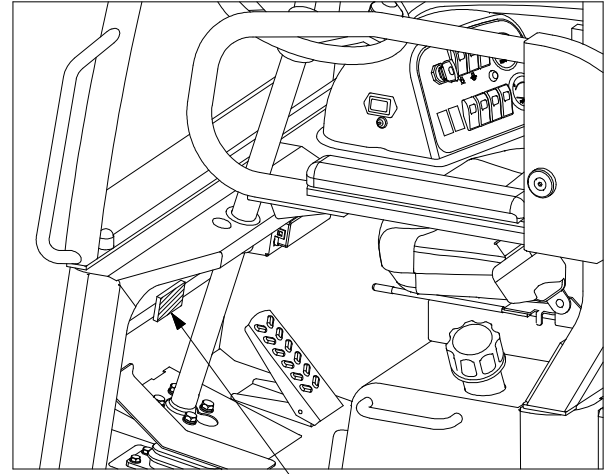
C8. SPECIAL PROCEDURES – 4-WAY STEERING

4-Way Override Procedure

In the event of a 4-Way system failure, a backup procedure is available on your machine to allow you to continue to operate the 4-Way function manually until the machine can be serviced.

First check that all the 4-Way LED's on the control module are working as they should. If they are all OK then check the 4-Way fuse has not blown. If this is intact then the following procedure can be carried out.

1. Remove the 4-Way controller from the inside of the pedal enclosure as shown.
2. Take the 4-Way override connector, this is tie wrapped to the wiring loom behind the steering column.
3. Plug the 4-Way override connector into the wiring loom at the same location the 4-Way controller has been removed from. The override connector is color coded (black) to connect into branch eight of the wiring loom.
4. The 4-Way function can now be operated manually as described in the operation procedures.



4-Way Control Module

CALIFORNIA

Proposition 65 Warning

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer,
birth defects and other reproductive harm**



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